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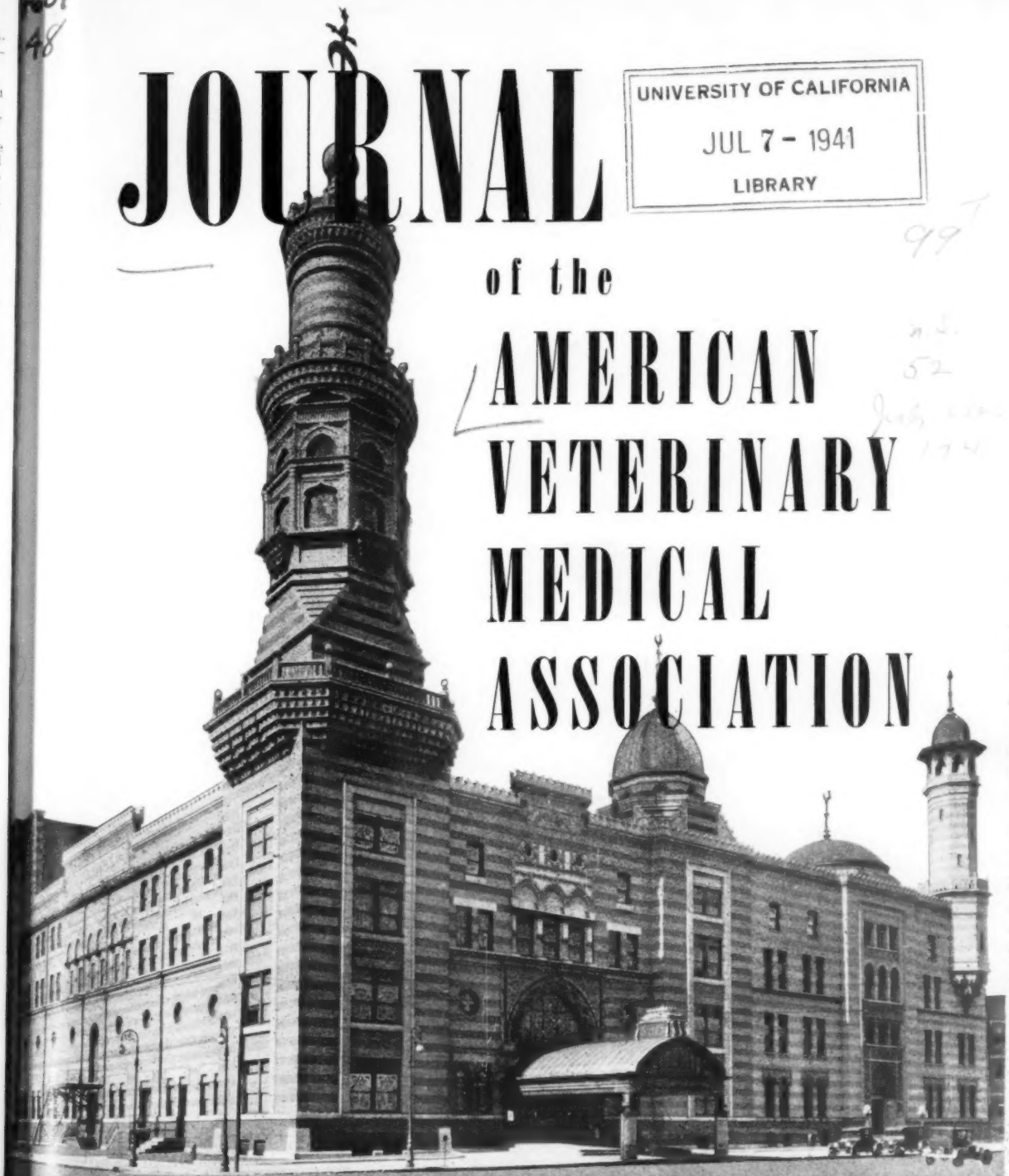

JULY 1941

CONVENTION NUMBER

Number 772

"CORN STATES"

salutes

The National Association

Since each annual convention of the American Veterinary Medical Association has been a step forward for veterinary science, "Corn States" honors the opportunity of congratulating the Association's officials and members for the prospect of holding a session of epochal magnitude and interest at Indianapolis in August.

The outward evidence of cooperation among the profession's various divisions—collegiate, clinical, public service, commercial—which has focused public attention to the significance of veterinary medicine in national welfare, is an additional reason for complimenting the national, state and local societies for their continuous labors.

As seen in the "Corn States" perspective, these organizations have drawn attention (1) to the functions of the veterinary profession, (2) to the competence of its members in the field and laboratories, and (3) notably to the work of their science in provisioning the people in times of emergency through protecting the health of livestock.

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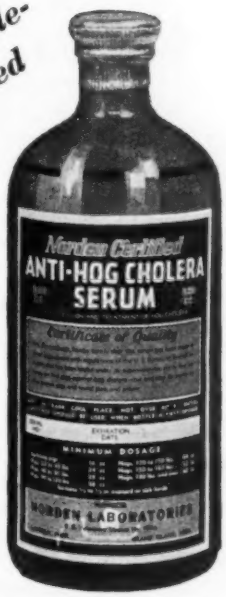

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Journal of the American Veterinary Medical Association

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Officers: A. E. Wight, *President;* H. W. Jakeman, *President-Elect;* John G. Hardenbergh, *Executive Secretary;* M. Jacob, *Treasurer.*

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VOL. XCIX JULY 1941 NO. 772

[EDITOR'S NOTE: *The building depicted on the front cover of this issue is Murat Theatre and Shrine Temple, headquarters of the convention.*]

The Indianapolis Session: A Message from President Wight

THE ACTIVITIES of the American Veterinary Medical Association, like those of every other worthwhile organization, are directed toward the attainment of certain clearly defined objectives calculated to increase the value of the service it performs both for the public and its own members.

The basic objectives of the AVMA may be concisely set down as:

1) Continuous progress in the maintenance and improvement of the health of our animal population through united, group efforts;

2) Coördination of veterinary activities with those of other professional and service organizations;

3) Increased public recognition of the service rendered by the veterinary profession.

In the fast-moving national scene of the past few months we have all been impressed with the growing importance of our Association's objectives as we enter a period when our nation is likely to be confronted with new problems of animal health and maintenance of the national food supply.

All of us who are constitutionally responsible for the Association's welfare have been happily astonished at the response that is being offered to the new demands being made upon us. We have found ourselves directing the activities of an Association far more influential and more widely recognized than even we had claimed it to be.

At our annual convention, to be held in Indianapolis, August 11-15, the entire membership will have an opportunity to participate in an action chronicle of the progress of organized veterinary medicine. Every member will have an opportunity to help accelerate still further our new momentum of progress.

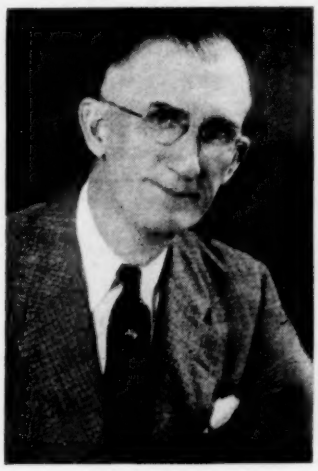
It is with this thought in mind that I urge every member to make an effort to attend the Indianapolis convention. This year, more than ever before, we need a large representation, for this year a greater number of people than ever before will eye our proceedings.

The events of recent months have dramatized the fact that the veterinary profession is a vital factor in the national defense program—that it must be on the alert more than ever to guard America's livestock resources. Veterinary news has thus won a new interest rating. The press will welcome the story our convention unfolds. Never before have we been as close to achieving the widespread public recognition which our profession deserves.

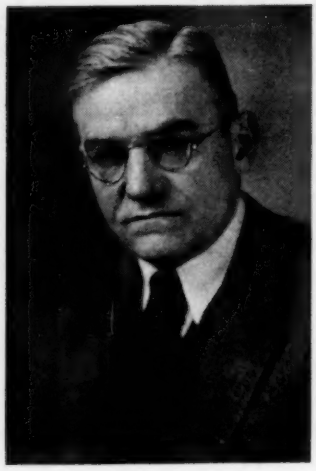
On behalf of the officers of the AVMA and the personnel in charge of arranging for the coming session, I express the hope that you, by your attendance, will help make this 78th annual meeting "The World's Largest Veterinary Convention."

Fraternally,
(signed) A. E. WIGHT, *President.*

Committee on



J. L. Axby
General Chairman



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Walter K. York
Public Relations

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Entertainment

J. L. Kixmiller
Technical Exhibits

W. A. Sullivan
Educational Exhibits

G. E. Botkin
Banquet & Dance

D. D. Baker
Alumni Dinners

H. W. Demsey
President's Reception

LOCAL ARRANGEMENTS

Seventy-Eighth Annual Meeting

Mrs. J. C. Schoenlaub
Ladies' Entertainment

Edgar D. Wright
General Chairman of Clinics

C. C. Donelson
Large Animal Clinic

H. W. Brown
Small Animal Clinic

L. P. Doyle
Sheep and Swine Clinic

F. C. Tucker
Poultry Clinic

R. J. Hoskins
Parking of Automobiles

C. Harvey Smith
Restraint

Walter F. Smith
Anesthesia

See page 13 for complete personnel of the local committee.

TENTATIVE PROGRAM

Condensed Program

Sunday, August 10. 10:00 a.m.: Meeting of the Board of Governors; committee meetings. 2:00 p.m.: Executive Board session; committee meetings.

Monday, August 11. 8:30 a.m.: Registration; Executive Board session; committee meetings. 2:00 p.m.: House of Representatives, first session. 7:30 p.m.: Motion pictures. 8:00 p.m.: House of Representatives, second session.

Tuesday, August 12. 10:00 a.m.: Opening session. 12:30 p. m.: Luncheon for ladies. 1:30 p.m.: General session, including nomination of officers. 2:00 p.m.: Annual meeting of Women's Auxiliary, followed by lecture by Julia Bock Harwood on "South America—A Land of Contrasts." 7:30 p.m.: President's reception and dance.

Wednesday, August 13. 9:00 a.m.: Sectional meetings; breakfast-swim for ladies. 1:30 p.m.: Sectional meetings; tour of "Real Silk hosiery mills for ladies. 7:00 p.m.: Annual banquet, floor show and dance, Scottish Rite Cathedral.

Thursday, August 14. 9:00 a.m.: General session; entertainment for ladies. 12:30 p.m.: Alumni luncheons. 2:00 p.m.: Buses to Indianapolis Speedway for auto races. 7:00 p.m.: House of Representatives, third session. 7:00 p.m.: Special entertainment.

Friday, August 15. 9:00 a.m.: Clinics; optional for ladies. 1:30 p.m.: Clinics.

Saturday, August 16. Post-convention tour, courtesy of Pitman-Moore Co.

Opening Ceremony

TUESDAY MORNING, AUGUST 12, MURAT THEATRE

10:00: Call to order.

Music.

Invocation—EARL S. HINKLE, *Centerville, Ind.*

Address of Welcome—HON. HENRY F. SCHRICKER, *Governor, State of Indiana.*

Response (speaker to be named in official program).

Greetings from the Women's Auxiliary—MRS. WILLIAM MOORE, *President, Raleigh, N. Car.*

Address of the President.

Presentation of certificate to PRESIDENT A. E. WIGHT by I. E. NEWSOM, *Chairman, Executive Board.*

Presentation of gold key to PRESIDENT-ELECT HARRY W. JAKEMAN by I. E. NEWSOM.

Presentation of Twelfth International Veterinary Congress Prize by I. E. NEWSOM.

Announcements by J. L. AXBY, *General Chairman, Committee on Local Arrangements.*

*General Sessions**

1) Address by CLAUDE S. WICKARD, *Secretary of Agriculture, Washington, D. C.*

2) Brief talk by ORVILLE S. POLAND, *Staff Assistant to the Secretary of the Treasury, Washington, D. C.*

3) Army Veterinary Service in the Defense Effort—COLONEL RAYMOND A. KELSER, *Chief, Veterinary Division, Surgeon General's Office, Washington, D. C.*

4) Treatment of Bovine Mastitis—O. W. SCHALM, *Division of Veterinary Science, University of California, Berkeley, Calif.*

5) Some Nutritional Deficiencies of Dairy Cattle—C. F. HUFFMAN, *Research Professor of Dairy Husbandry, Michigan State College, East Lansing, Mich.*

6) Wildlife Conservation—IRA N. GABRIELSON, *Director, Fish and Wildlife Service, Department of the Interior, Washington, D. C.;* or by PAUL MILLER, *Director, American Wildlife Institute, Washington, D. C.*

7) Talk by CONGRESSMAN GEORGE W. GILLIE, *Indiana.*

8) The Poultry Industry Needs the Veterinary Profession—J. HOLMES MARTIN, *Purdue University, Lafayette, Ind.*

9) Talk by THURMAN B. RICE, M.D., *Indiana Medical Centre.*

10) Common Tropical Diseases of Animals—G. A. ROBERTS, *Director of Animal Health, Trujillo City, Dominican Republic.*

11) Address by winner of Twelfth International Veterinary Congress prize.

*Two general sessions will be held—the first on the afternoon of August 12, the second on the morning of August 14—but definite assignment to these sessions of the talks and papers listed herewith will not be made until the official program is prepared.

Section on General Practice

Arnold H. Schmidt (left), chairman of the Section.

J. F. Bullard (right), secretary.

MORNING SESSION

1) Physiologic and Metabolic Aspects of Acetonemia in Cattle—M. H. ROEPKE, *St. Paul, Minn.*

2) Acetonemia and Albuminuria in Dairy Cows—JOHN N. CAMPBELL, *Fairmont, Minn.*

3) Internal Parasites of Cattle—C. HARVEY SMITH, *Crown Point, Ind.*

4) Some Observations Regarding Vitamin Requirements of Thoroughbreds in Training—CASSIUS WAY, *New York, N. Y.*

5) Anesthesia in Large Animals—E. A. DOWNS, *Mount Sterling, Ohio.*

6) Keratitis in Cattle—VILO T. ROSE, *Elkton, Ky.*

AFTERNOON SESSION

7) Enteric Problems in Swine and Their Treatment—T. L. STEENERSON, *Wilkinson, Ind.*

8) Diseases of the Newborn in the Equine Species—R. A. MCINTOSH, *Guelph, Ont.*

(BUSINESS SESSION; NOMINATION OF OFFICERS)

9) Some Practical Phases of Sheep Practice—T. P. CRISPELL, *Parsons, Kan.*

10) Difficulties Encountered in General Practice—C. F. VAND DE SAND, *Kiel, Wis.*

11) Animal Casualties from Chemical Warfare Agents—CAPTAIN DON MACE, *Veterinary Corps, Edgewood Arsenal, Md.*

12) Some Vitamin Deficiencies in Cattle—C. C. HASTINGS, *Williamsville, Ill.*

Section on Sanitary Science and Food Hygiene

M. B. Starnes (left), chairman of the Section.

W. T. Spencer (right), secretary.

MORNING SESSION

1) Veterinary Inspection of Meat, Meat Foods and Dairy Products Consumed by the Army—LT. COLONEL FRED C. WATERS, *Depot Veterinarian, Quartermaster Depot, Chicago, Ill.*

2) Livestock Marketing Problems—R. C. ASHBY, *Chief, Livestock Marketing Division, University of Illinois, Urbana, Ill.*

3) Transportation of Livestock—LEWIS P. EAST, *Livestock Traffic Agent, Pennsylvania Railroad, Richmond, Ind.*

4) Factors Influencing Livestock Values—COLONEL EDWARD N. WENTWORTH, *Director, Livestock Bureau, Armour & Co., Chicago, Ill.*

AFTERNOON SESSION

5) Sales-Barn Problems—H. A. SEIDELL, *State Veterinarian, Des Moines, Iowa.*

6) Veterinarians and Public Relations—HARRY J. BOYTS, *Regional Manager, National Live Stock Loss Prevention Board, Sioux City, Iowa.*

(BUSINESS SESSION; NOMINATION OF OFFICERS)

7) Some Swine Problems of the Future—FRANK BREED, *Norden Laboratories, Lincoln, Neb.*

8) Single-Service Containers for Distribution of Fluid Milk—J. R. SANBORN, *New York Agricultural Experiment Station, Geneva, N. Y.*

Section on Research

Frank Thorp, Jr. (left), chairman of the Section.

C. K. Mingle (right), secretary.

MORNING SESSION

1) Studies on Pig Mortality. II. Further Observations on Acute Hypoglycemia in Newly Born Pigs—JESSE SAMPSON, H. R. HESTER AND ROBERT GRAHAM, *Division of Animal Pathology and Hygiene, University of Illinois, Urbana, Ill.*

2) Significance of Inclusion Bodies in Distemper—W. WISNICKY AND LOUISE WIPF, *Department of Veterinary Science, University of Wisconsin, Madison, Wis.*

3) The Relation of Leucemia and Bovine Lymphocytoma—W. W. THOMPSON AND LEE M. RODERICK, *Division of Veterinary Medicine, Kansas State College, Manhattan, Kan.*

4) The Relationship Between the Blood and Whey Titers and the Occurrence of Brucella Abortus in the Udder—H. J. METZGER AND FREIDA R. STOKES, *New Jersey Agricultural Experiment Station, New Brunswick, N. J.*

5) Tests on the in Vitro Neutralization of Hog-Cholera Virus with Hog-Cholera Antiserum—H. C. H. KERNKAMP AND M. H. ROEPKE, *Division of Veterinary Medicine, University of Minnesota, University Farm, St. Paul, Minn.*

6) The Stability of Reduced Virulence Exhibited by Brucella Abortus Strain 19—C. K. MINGLE, C. A. MANTHEI AND A. M. JASMIN, *Animal Disease Station, Beltsville, Md.*

AFTERNOON SESSION

7) Some Observations on the Control of Bovine Mastitis—W. D. POUNDEN AND B. A. BEACH, *Department of Veterinary Science,* AND E. G. HASTINGS, *Department of Agricultural Bacteriology, University of Wisconsin, Madison, Wis.*

8) Studies on the Etiology and Pathology of Calf Pneumonia—W. T. S. THORP AND J. F. SHIGLEY, *Department of Animal Husbandry,* AND M. A. FARRELL, *Department of Dairy Husbandry, Pennsylvania State College, State College, Pa.*

(BUSINESS SESSION; NOMINATION OF OFFICERS)

9) Feeding as a Contributory Factor to the Development of Mastitis—EARL N. MOORE, A. H. VAN LANDINGHAM, C. E. WEAKLEY, JR., AND H. O. HENDERSON, *West Virginia Agricultural Experiment Station, Morgantown, W. Va.*

10) Some Observations on the Pathology of Pneumonia of the Food-Producing Animals—ROBERT F. LANGHAM, FRANK THORP, JR., AND RONALD T. INGLE, *Michigan Agricultural Experiment Station, East Lansing, Mich.*

11) Vitamin A Deficiencies in Ruminants—H. SCHMIDT, *Division of Veterinary Science, Texas Agricultural Experiment Station, College Station, Texas.*

12) Sporadic Bovine Encephalomyelitis: Filtration of the Causal Agent—S. H. MCNUTT AND T. W. STEARNS, *Division of Veterinary Medicine, Iowa State College, Ames, Iowa.*

13) Factors Influencing Early Fertility in Reindeer Together with Some Figures Relative to the Incidence of Tuberculosis, Parasitic Disease, etc., in Buffalo, Moose and Elk—SEYMOUR HADWEN, *Department of Pathology and Bacteriology, Ontario Research Foundation, Toronto, Ont.*

Section on Small Animals

E. K. Sales (left), chairman of the Section.

Roy E. Nichols (right), secretary.

MORNING SESSION

1) Plastic Surgery—J. C. FLYNN, *Kansas City, Mo.*

2) Glaucoma—MASON WEADON, *Washington, D. C.*

3) Sanitation and Parasite Control in the Small Animal Hospital—J. C. WRIGHT, *Atlanta, Ga.*

4) Canine Encephalitis (illustrated)—C. H. BECKMAN, *St. Louis, Mo.*

5) Some Observations on Surgery of the Canine Pelvic Girdle—OTTO STADER, *Ardmore, Pa.*

AFTERNOON SESSION

A symposium on canine nutrition is being arranged for the afternoon session.

(BUSINESS SESSION; NOMINATION OF OFFICERS)

Section on Poultry

C. A. Brandly (left), chairman of the Section.

F. R. Beaudette (right), secretary.

MORNING SESSION

1) Paratyphoid Infection in Quail—CHARLES H. CUNNINGHAM, *Centreville, Md.*

2) A Review of 3,000 Autopsies—E. R. QUORTRUP, *Brigham, Utah.*

3) The Use of Vinylite Resin Corrosion Preparations to Study the Organs of the Domestic Fowl Affected with the Avian Leucosis Complex—G. E. COTTRAL, *East Lansing, Mich.*

4) Serial Passage of Strain 3, Lymphomatosis-Osteopetrosis in Chickens—C. A. BRANDLY, N. M. NELSON AND G. E. COTTRAL, *East Lansing, Mich.*

5) Transmission of Avian Encephalomyelitis—H. VAN ROEKEL, K. L. BULLIS AND M. K. CLARKE, *Amherst, Mass.*

AFTERNOON SESSION

6) Paratyphoid Infection of Breeding Turkeys—B. S. POMEROY AND R. FENSTERMACHER, *St. Paul, Minn.*

7) The Present Status of Avian Encephalomyelitis—E. JUNGHERR AND E. L. MINARD, *Storrs Agricultural Experiment Station, Storrs, Conn.*

(BUSINESS SESSION; NOMINATION OF OFFICERS)

8) Further Observations on a Blood Protozoan of Turkeys Transmitted by Simulium Nigroparvum (Twinn)—E. P. JOHNSON, *Virginia Agricultural Experiment Station, Blacksburg, Va.*

9) Further Studies on the Propagation of Avian Leucosis in Chick Embryos by Intravenous Inoculation—W. J. HALL AND MORRIS POLLARD, *Bureau of Animal Industry, U. S. Department of Agriculture, Hyattsville, Md.*

10) Preliminary Report on Interspecies Transmission of Avian Leucosis in Embryos—MORRIS POLLARD AND W. J. HALL, *ibid.*

Section on Surgery and Obstetrics

James N. Frost (left), chairman of the Section.

George R. Fowler (right), secretary.

MORNING SESSION

1) Surgery of the Equine Foot—H. B. TREMAN, *Rockwell City, Iowa.*

2) Some Pertinent Questions Regarding Roaring—E. E. WEGNER, *College of Veterinary Medicine, State College of Washington, Pullman, Wash.*

3) A Presentation and Discussion of the Army Remount and Breeding Plan—CAPTAIN WM. E. JENNINGS, *Army Remount Depot, Front Royal, Va.*

4) Nymphomania—F. E. WALSH, *Department of Obstetrics, Division of Veterinary Medicine, Iowa State College, Ames, Iowa.*

5) Embryotomy in the Mare (illustrated)—WALTER R. KRILL, *College of Veterinary Medicine, The Ohio State University, Columbus, Ohio.*

AFTERNOON SESSION

6) Sterility in the Bull—FRED W. MILLER, *Whitewater, Wis.*

7) Retained Placenta—M. G. FINCHER, *New York State Veterinary College, Cornell University, Ithaca, N. Y.*

(BUSINESS SESSION; NOMINATION OF OFFICERS)

8) Cesarean Section in the Bovine (illustrated)—E. R. FRANK, *Division of Veterinary Medicine, Kansas State College, Manhattan, Kan.*

9) Bovine Sterility from the Practitioner's Viewpoint—JAMES C. CAREY, *West Liberty, Iowa.*

10) Recent Advances in Wound Treatment (illustrated in color)—JAMES FARQUHARSON, *Division of Veterinary Medicine, Colorado State College, Fort Collins, Colo.*

Clinics

Friday, August 15. 9:00 a.m.: All-day clinics and demonstrations in Murat Temple. Large animal, small animal, poultry, and sheep and swine clinics will be held both morning and afternoon.

Subsidiary Meetings

Women's Auxiliary to the AVMA. Luncheon, Indianapolis Athletic Club, Tuesday, August 12, followed by business meeting and entertainment.

American Society of Veterinary Therapy. Egyptian Room, Murat Temple, Monday, August 11.

Extension Service Veterinarians. Conference, Tuesday, August 12. Time and place to be announced during convention.
Second conference, Candidates Room, Murat Temple, Thursday, August 14, 7:30 p.m.

Alpha Psi. Dinner, Tuesday, August 12, 6:30.

American Animal Hospital Association. Business meeting, Candidates Room, Murat Temple, Thursday, August 14, 9:00 a.m.

AVMA Junior Chapter Representatives. Time and place to be announced during convention.

Executive, Legislative and Committee Sessions

Sunday, August 10. 10:00 a.m.: Meeting of the Board of Governors; committee meetings. 2:00 p.m.: Executive Board session; committee meetings.

Monday, August 11. 8:30 a.m.: Executive Board session; committee meetings. 2:00 p.m.: House of Representatives, first session. 8:00 p.m.: House of Representatives, second session.

Thursday, August 14. 7:00 p.m.: House of Representatives, third session.

Entertainment

GENERAL ENTERTAINMENT

Monday, August 11. Veterinary golf championship.

Tuesday, August 12. 7:30 p.m.: President's reception and dance, Egyptian Room, Murat Temple.

Wednesday, August 13. 7:00 p.m.: Annual banquet, floor show and dance, Scottish Rite Cathedral.

Thursday, August 14. 12:30 p.m.: Alumni luncheons, at various hotels. 2:00 p.m.: Special auto races at Indianapolis Speedway. 7:00 p.m.: "Red, Hot and Blue Show," Egyptian Room, Murat Temple.

Saturday, August 16. Post-convention tour, courtesy Pitman-Moore Co.

LADIES' SPECIAL ENTERTAINMENT

Tuesday, August 12. 12:30 p.m.: Luncheon at Indianapolis Athletic Club, followed by annual meeting of the Women's Auxiliary at 2:00 p.m. 3:00 p.m.: Lecture by Julia Bock Harwood on "South America—A Land of Contrasts"; native costumes will be modeled as this talk is given.

Wednesday, August 13. Breakfast-swim and card party at Indianapolis Athletic Club. 1:30 p.m.: Tour of "Real Silk" hosiery mills.

Thursday, August 14. 9:00 a.m.: Optional.

Friday, August 15. Optional.

Organization of the Committee on Local Arrangements

General Chairman: J. L. AXBY, *Indianapolis.*

Assistant General Chairman: R. E. KEPNER, *New Castle.*

General Secretary: C. C. DOBSON, *New Augusta.*

Committee on Hotels and Meeting Places: FRANK H. BROWN, *Chairman, Indianapolis;* Noble W. Elsbury, Lester C. Finley, Robert J. Hoskins, O. K. Young.

Committee on Public Relations: WALTER K. YORK, *Chairman, Indianapolis;* Glenn L. Ebright, Charles E. Sharp, O. C. Shockley, T. L. Steenerson.

Committee on Entertainment: J. C. SCHOENLAUB, *Chairman, Indianapolis;* D. D. Baker, C. R. Baumgartner, G. E. Botkin, Marvin Bratt, Cliff Carpenter, O. B. Curry, H. W. Demsey, Glenn L. Ebright, G. W. Musselman, T. A. Sigler.

Committee on Technical Exhibits: J. L. KIXMILLER, *Chairman,*

Indianapolis; Vern H. Cooper, S. F. Gaynor, J. C. McDaniel, R. L. Smith, H. J. Weaver.

Committee on Educational Exhibits: W. A. SULLIVAN, *Chairman, Indianapolis;* Charles R. Donham, G. Franz, V. F. Saylor.

Committee on Ladies' Entertainment: MRS. J. C. SCHOENLAUB, *Chairman, Indianapolis;* Mrs. J. L. Axby, Mrs. D. D. Baker, Mrs. C. R. Baumgartner, Mrs. G. E. Botkin, Mrs. Marvin Bratt, Mrs. George L. Clark, Mrs. O. B. Curry, Mrs. H. W. Demsey, Mrs. Glenn L. Ebright, Mrs. George W. Gillie, Mrs. W. C. Kortenber, Mrs. C. Harvey Smith, Mrs. Walter Smith.

Committee on Banquet and Dance: G. E. BOTKIN, *Chairman, Marion;* F. W. Bratten, R. F. Dean, A. A. Johnson.

Committee on Alumni Dinners: D. D. BAKER, *Chairman, Wabash;* Wayne Alter, G. M. Wagaman.

Committee on President's Reception: H. W. DEMSEY, *Chairman, Huntington;* Dr. and Mrs. C. R. Baumgartner, Dr. and Mrs. Glenn L. Ebright, Dr. and Mrs. J. C. Schoenlaub, Dr. and Mrs. David Smith.

General Chairman of Clinics: EDGAR D. WRIGHT, *Fort Wayne.*

Committee on Large Animal Clinics: C. C. DONELSON, *Chairman, Indianapolis;* Antoon Busser, J. A. Dragoo, L. W. Evans, A. F. Ferguson, F. A. Hall, J. L. Hetherington, T. R. Irons, H. A. Lidikay, J. H. Mills, C. O. Petry, E. G. Pringle, J. F. Roberts, J. A. Schwartz, R. W. Wann.

Committee on Small Animal Clinics: H. W. BROWN, *Chairman, Fort Wayne;* R. F. Bartlow, F. R. Booth, H. M. Bratt, H. Meade Hamilton, Robert J. Hoskins, Wade G. Hunter, H. J. Magrane, Paul T. White.

Committee on Sheep and Swine: L. P. DOYLE, *Chairman, Lafayette;* C. J. Hufty, E. W. Kline, M. M. Seeger, R. F. Smith, R. B. Whitesell.

Committee on Poultry: F. C. TUCKER, *Chairman, Claypool;* D. D. Baker, J. B. Current, A. A. Johnson, R. F. Smith, O. K. Young.

Committee on Parking of Automobiles: ROBERT J. HOSKINS, *Chairman, Indianapolis;* Frank H. Brown, Paul T. White.

Committee on Restraint and Anesthesia: C. HARVEY SMITH, *Chairman (Restraint), Crown Point,* and WALTER SMITH, *Chairman (Anesthesia), Valparaiso;* L. E. Andres, H. M. Bratt, J. F. Bullard, H. B. Campbell, George L. Clark, C. W. Fisher, E. S. Hess, Earl Higgins, T. R. Irons, W. C. Kortenber, C. O. Petry, T. A. Sigler, J. E. Tinder.

Post-Convention Trip

In keeping with the custom of recent years, a post-convention tour has been arranged for Saturday, August 16. This will include not only points of special interest to members of the veterinary profession, but also, since it will traverse long stretches of Indianapolis streets as well as much of the fine farm land of Marion county, it will give those who participate a splendid view of the host city.

Starting at a convenient location in the hotel district, the first stop will be the pharmaceutical laboratories of Pitman-Moore Company, a division of Allied Laboratories, Inc. Here there will be an opportunity to see such interesting processes as the granulation, compression and coating of tablets in a modern air-conditioned laboratory, the production of parenteral solutions, powders, liquids, ointments and other veterinary pharmaceutical products.

The buses will then proceed to the Indiana state fair grounds, where the noon stop will be made for luncheon. Its permanent cattle, horse, sheep and swine pavilions and other structures, totalling 18½ acres of floor space under permanent roofs, are admittedly the finest of any state fair in the world. Of these, its coliseum with the world's largest indoor arena is recognized as the best-appointed and handsomest state fair structure in existence. In warm weather it houses horse shows and similar activities and in the winter is devoted to ice hockey and great ice spectacles.

After lunch the tour will continue to the Pitman-Moore biological laboratories, located about 14 miles from the center of Indianapolis and a short distance from the neighboring town of Zionsville. Here separate laboratories are maintained for the production of canine distemper products, equine encephalomyelitis serum and vaccine, bacterins, immune serums, toxoids, and antitoxins.

Following this tour the buses will return to the center of the city. Arrangements for this trip should be made at the registration desk, preferably at the time of registration.

Leading Indianapolis Hotels and Rates

	Single	*Double*	*Twin Beds*
Antlers	$2.50-4.00	$4.00-5.00	$4.50-6.00
Claypool	3.00-6.00	4.50-8.00	5.50-8.00
Harrison	2.50-4.00	4.00-6.00	5.50-6.00
Lincoln	3.00-6.00	4.50-8.00	5.00-7.00
Marrott	3.00-up	6.00-up	6.00-up
Severin	2.50-4.00	4.00-6.00	5.00-7.00
Spink-Arms	2.50-6.00	4.00-7.00	
Warren	2.50-3.50	4.00-6.00	5.50-6.00
Washington	2.50-4.00	4.00-6.00	5.50-6.00

EXHIBITS

The educational and technical exhibits will occupy the entire main lounge of Murat Temple and will be open from 8:30 a.m. until 5:30 p.m. daily. This year they are the largest in number and variety of any hitherto presented at an AVMA meeting. Members and guests are invited to visit the exhibits frequently and to inspect the many unusual displays that will be offered. In fact, those in attendance will find the exhibit room a convenient and comfortable gathering place between sessions and at other times. Admission to the lounge will be by registration badge only.

Educational Exhibits

Federal Bureau of Animal Industry

The federal Bureau of Animal Industry will present a number of exhibits including fresh and preserved pathological specimens from cases of transmissible diseases of animals; also, the history of certain disease-control measures will be depicted and other control methods will be demonstrated.

Gradwohl School of Laboratory and X-Ray Technique

The Gradwohl School of Laboratory and X-Ray Technique will show methods of freezing sections of pathological tissues for microscopic examination and methods of staining; microscopic demonstrations of spirochetes; a new Gram-staining method for tissues; hematological specimens with Giemsa, Wright and combined stains; Schilling blood counts, and other clinical-pathological tests applicable in veterinary medicine.

National Live Stock and Meat Board

The National Live Stock and Meat Board will furnish an exhibit similar to the one shown in the veterinary science exhibit at the New York World's Fair, depicting in transparencies informative food-value charts together with wax models of food (breakfast, luncheon and dinner) for reducing, normal and gaining diets.

New Jersey Bureau of Animal Industry

The New Jersey Bureau of Animal Industry will demonstrate a new method for the detection of tuberculosis in cattle.

Associated Serum Producers

The Associated Serum Producers will display two panels showing the various activities of their organization in newspaper, farm-paper and radio publicity designed to educate the public in general and the livestock owner in particular as to the value of veterinary services.

American Animal Hospital Association

The Committee on Foods of the American Animal Hospital Association will illustrate and describe the dog-food-testing program of the AAHA and the AVMA.

The Ohio State University

The College of Veterinary Medicine of The Ohio State University will present an exhibit on the circulatory system of the kidney and other organs.

Veterinary Corps

The Veterinary Corps of the United States Army will depict certain features of its work.

Motion Pictures

Motion pictures on various phases of veterinary science and related fields will be shown at hours and places to be announced.

American Veterinary Medical Association

The AVMA will have a booth in which will be illustrated its more important activities.

Technical Exhibits

Abbott Laboratories

Abbott Laboratories will distribute literature on some of their most popular pharmaceutical products, including Nembutal, the original barbiturate for animal anesthesia; Thiuride, a new organic sulfur compound; Pentothal Sodium, a short-acting intravenous barbiturate; Vita-King, a mineral supplement; and Metaphen products.

Armour and Company

Glandular products, pharmaceutical preparations and "Fowler Brand" anti-hog-cholera serum and hog-cholera virus will be displayed by Armour and Company. Well-informed representatives will be on hand to welcome visitors and furnish information.

Becton, Dickinson & Co.

Featured in the Becton, Dickinson & Co. exhibit will be the latest developments in veterinary specialty items, particularly syringes and needles. Mr. Lou C. Mourey will be in charge of the exhibit and will be pleased to answer questions concerning the company's products.

Bilhuber-Knoll Corp.

The surgical and medical indications for Metrazol, a stimulant that antidotes barbiturate depression and combats respiratory failure, will be explained to veterinarians visiting the Bilhuber-Knoll Corp. exhibit. Other products to be displayed are Lenigallol, a local treatment for many skin affections; Ichthalbin, an intestinal antiseptic; and Tannalbin, an intestinal astringent.

Campbell X-Ray Corp.

Campbell X-Ray Corp. will exhibit the 1941 models of their X-Ray Animagraph, the only complete x-ray outfit designed for the exclusive use of the veterinarian.

Carnation Company

Friskies, a compressed dog food in cubes that bears the AAHA-AVMA seal of approval, will be on exhibit at an AVMA meeting for the first time. This food is produced by the Albers Milling Company of Seattle, Wash., a subsidiary of the Carnation Company. The nutritive elements of Friskies will be illustrated and the product itself will be available for inspection.

Cerophyl Laboratories, Inc.

V-Gras, a primarily natural vitamin supplement for dogs, will be exhibited by the Cerophyl Laboratories, Inc. This product is made of vitamin-rich cereal grasses combined with fish meal and dried buttermilk and so supplemented as to furnish the approximate daily vitamin requirements of the dog. V-Gras is uncooked and packed under inert gas in glass containers.

Corn Belt Laboratories, Inc.

Corn Belt Laboratories, Inc., will display anti-hog-cholera serum and virus, specialty instruments and a representative line of biological and pharmaceutical products. The exhibit will give particular emphasis to insect control through three popular Corn Belt products: Pralyinsect, a shampoo for ticks and lice and a spot treatment for fleas; Hydronex, a water fly spray concentrate; and hospital insect spray.

The Corn States Serum Company

The Corn States Serum Company will exhibit various products they handle, including the Grogan kennel, which features a sanitary shield above a removable base.

Curts-Folse Laboratories

A background of the firm's label, with pharmaceuticals and instruments arranged for inspection, is the plan of the Curts-Folse Laboratories' exhibit.

Cutter Laboratories

Cutter Laboratories will show motion pictures depicting the history of hog cholera and the progress that has been made in field vaccination with BTV and crystal-violet vaccine. Also on display will be the Cutter Saftivalve, a new blood-transfusion outfit. The Saftivalve was originally designed for use in human medicine but has been found to be particularly adaptable to small animal work.

Fort Dodge Laboratories, Inc.

The exhibit of Fort Dodge Laboratories, Inc., will emphasize the latest developments in veterinary science as they pertain to biological and pharmaceutical products. Habel-tested rabies vaccine, encephalomyelitis vaccine for intradermal use, anti-swine-erysipelas serum, vitamin products and new anthelmintics are among the items to be featured.

General Electric X-Ray Corporation

General Electric X-Ray Corporation will exhibit its portable, mobile-portable and mobile veterinary x-ray units together with a full line of x-ray accessories and supplies: developing tanks, interval timers, solution-temperature thermometers, film hangers,

film-drying racks, radiographic illuminators and diagnostic opaques. An interesting feature of the exhibit will be a display of photographs of modern high-voltage x-ray therapy units in use in veterinary schools.

Haver-Glover Laboratories

An array of practice requirements of interest to the general practitioner, including the newer listings of biological products, pharmaceuticals and instruments, will be on view at the Haver-Glover exhibit. As usual, two booths will be utilized to accommodate the varied offerings of this firm. An illuminated background for the exhibit should be especially attractive, and sufficiently inviting to encourage the friendly contacts made possible at the national meeting.

Hill Packing Company

The Hill exhibit will feature a number of the company's prepared foods. The principal ingredient of these foods, fresh-frozen horse meat, will be on display. Marrow fat oil, a specialty recently developed, also will be shown. Representatives will be pleased to explain the content and method of manufacture of Hill's dog food.

Jensen-Salsbery Laboratories, Inc.

Jensen-Salsbery Laboratories, Inc., will show a complete line of surgical supplies, including syringes, bleeding and blood-testing equipment, and operating instruments of the most popular patterns. As to pharmaceuticals, the firm will feature hormones, vitamin preparations, new calcium solutions for hypodermic use, including calcium borogluconate, and magnesium borogluconate. On exhibit from the Jen-Sal biological department will be the new type of sealed container and a new method of standardization of vaccines and serums.

Johnson & Johnson

Co-Hesive bandage, which adheres only to itself, will be given prominence in the Johnson & Johnson booth. Other items to be displayed are Duo Liquid adhesive, dressing combines, Synol soap, specialist plaster of paris splints, sutures, bandages, ready-made gauze pads, Chux under-pads, "ZO" adhesive plaster, cotton and absorbent cellulose.

Lederle Laboratories, Inc.

Lederle Laboratories, Inc., will feature their products for encephalomyelitis, hog cholera and distemper. Color transparencies of the laboratories at Pearl River, N. Y., where these products are manufactured, will be displayed on a three-way revolving cabinet. The exhibit will focus attention on an airplane view of the company's biological laboratories and call attention to the fact that Lederle's veterinary biological and pharmaceutical products are made with the same care as comparable products for human use.

Ashe Lockhart, Inc.

Ashe Lockhart, Inc., will exhibit biological products, including antiserums, vaccines, bacterins and diagnostic agents. Specimens and photographs of educational value also will be on view.

McMillen Feed Mills

Many members will recall the nutrition conferences for veterinarians held at Decatur, Ind., in recent years by the Central Soya Company, Inc., and its subsidiary, McMillen Feed Mills. Lyman Peck, director of nutrition, and several other representatives of these companies will be on hand in the McMillen booth to greet their many friends in the profession.

Merck & Co., Inc.

In the Merck booth the more recent developments in drug therapy will be displayed and literature on them distributed. Particular attention will be given to the vitamins and sulfonamides. Canex, for follicular mange, and Lentin, for intestinal conditions, are to be included in the exhibit.

The National Laboratories Corporation

The National Laboratories Corporation will show anti-hog-cholera serum and hog-cholera virus, pharmaceuticals and biological products. The fact that this organization confines its sales exclusively to graduate, licensed veterinarians will be emphasized in the exhibit.

Norden Laboratories

Norden Laboratories will display biological products, anti-hog-cholera serum, pharmaceuticals and instruments. The firm plans to feature Boynton's tissue vaccine, precipitated bacterins, Phenozine vermifuges, Bolets, new Norcalcinates, oil-proof Koroseal stomach tubes, Simplex outfits and special culture-vaccine syringes. President Carl J. Norden, Vice-President E. C. Jones, Secretary Frank Breed, Lynn Haupert, Ed Penticost and Ray Johnson will be on hand to greet visitors. Look for the Viking boat, trademark of Norden Certified products.

Pitman-Moore Co.

In view of the fact that the convention is being held in the home city of their laboratories, Pitman-Moore Co., a division of Allied Laboratories, Inc., will forego an exhibit of their products and, instead, will assist in the job of being convention hosts, providing such accommodations as local information, telephone and stenographic service, writing materials and desks—in surroundings conducive to rest and relaxation.

Sharp & Dohme, Inc.

Sharp & Dohme will exhibit their pharmaceutical and Mulford biological products. Among the pharmaceutical specialties will be included Canine Crystoids Anthelmintic, B.F.I. powder and combinations, S.T. 37, Elixir B-G-Phos and other vitamin products. In connection with the latter, a comprehensive vitamin chart will be available for distribution.

Soybean Nutritional Research Council

4,800 years ago a Chinese emperor, Shen Nung, wrote a materia medica about the properties of the soy bean. At the 1941 AVMA convention, 4,800 years later, in the booth of the Soybean Nutritional Research Council, will be featured the progress in the soy

bean and the soy bean processing industry in this country. Members of the Council are all authorities on nutrition, in the employ of various processors. These men have made a study of the composition and nutritive properties of soy beans and soy bean oil meal. They will be in attendance at the booth to answer questions and to disseminate information.

R. J. Strasenburgh Co.

R. J. Strasenburgh Co., pharmaceutical chemists who have served the veterinary profession for over 55 years, will feature USB solution, a specialty recently developed in their research laboratories. Representatives will be pleased to give information about USB and many other veterinary specialties. This firm maintains a rigid national policy of sales to graduate veterinarians only.

Swift & Company

For the seventh consecutive year Pard dog food will be exhibited at the Association's annual meeting. In a lively, colorful and informative setting the Pard booth will display this nutritionally balanced ration.

U. S. Vitamin Corporation

U. S. Vitamin Corporation will show anatomical vitamin- and mineral-deficiency charts of the horse and dog, along with Chevinal, a vitamin-mineral supplement for horses in training, and Pervinal, a vitamin-mineral supplement for small animals. Samples and literature will be distributed.

Vitamineral Products Company

The Vitamineral Products Company exhibit will comprise copies of case reports, samples of the firm's various containers, advertising literature and samples of the raw materials used in the manufacture of Vitamineral compounds.

Wilson & Co.

The fact that only high-quality ingredients go into Ideal dog food will be stressed in the Wilson & Co. booth, and recent research findings of the Ideal kennels and the university foundation will be pointed out.

Winthrop Chemical Company, Inc.

Winthrop Chemical Co., Inc., will feature some of their original synthetic pharmaceutical contributions to the field of veterinary medicine. Among them are Novocain, the first procaine hydrochloride, for local anesthesia; Neoprontosil, an injectable sulfonamide; Neosalvarsan, the first neoarsphenamine; Betaxin, synthetic vitamin B_1; and Nemural, Fuadin and Quarcyl—tapeworm, heartworm and strongylosis treatments, respectively.

Other Exhibitors

Firms other than those listed above which will exhibit at the annual meeting are Chappel Bros., Inc.; Eisele & Company; General Mills, Inc.; and John Morrell & Co.

Is Calfhood Vaccination Against Brucellosis Still in the Experimental Stage?*

C. M. HARING, D.V.M., and J. TRAUM, D.V.M.
Berkeley, Calif.

IN A RECENT paper[1] we expressed the opinion that use of strain 19 was still in an experimental stage. That paper was written in the spring of 1940 in order to be available for abstracting in the JOURNAL in advance of the August (1940) meeting of the A.V.M.A.

Practically all immunizing agents now in general use have needed and received additional study after they had been accepted by practitioners and others interested in human and veterinary medicine. So it is with vaccine made from the Bureau of Animal Industry Culture Strain No. 19, and in that sense it is still in the experimental state. However, in view of the following described developments during the past few months, especially the action of the Bureau of Animal Industry, U. S. Department of Agriculture, to enforce standards of potency in the commercial production of the vaccine, we believe it is ready for use by practitioners in calfhood vaccination whenever indicated.

1. Improvements in controlling fluctuations in the antigenic power of the vaccine are now available and methods for minimizing dissociation in Strain 19 are in use by the Bureau of Animal Industry. All licensed manufacturers are now required to market only vaccine produced from suitable cultures furnished at regular intervals by the federal Animal Disease Station at Beltsville.

2. Before a vaccine serial can be marketed, the manufacturer must submit a sample to the Bureau of Animal Industry for test. The need for such regulation is evident from the following statement in the report of the chief of the Bureau of Animal Industry for the year ending June 30, 1940:

> Two years ago a preliminary test of 125 samples of commercial Brucella vaccine showed more than 40 per cent to be unsatisfactory, according to the Bureau's rigid requirements. Since supervised field trials of calfhood vaccination were showing vaccine to be very effective in the prevention of Bang's disease, it was decided that all batches of commercial vaccine should be tested and approved before sale was permitted. Last year 876 serial samples were tested and 208, or 23.7 per cent, were classed as unsatisfactory. During the 6-month period from January 1 to June 30, 1940, 754 samples were tested and only 54, or 7.2 per cent, were classed as unsatisfactory. This procedure of testing all Brucella vaccine has resulted in a vast improvement in this product.

According to a recent ruling of the Bureau any completed product which has more than 15 per cent dissociants must be considered sufficiently altered to preclude its use as a vaccine agent.

3. Official recognition that such vaccination is a suitable aid in coöperative work to control bovine brucellosis was announced by Mohler, Wight and O'Rear[2] in December, 1940. This announcement alone has been sufficient to quiet many who have been insisting that herd owners should have nothing to do with calfhood vaccination because it is still in the experimental stage.

4. It has been possible to build negative herds from badly infected ones by the use of Strain 19 vaccine. The work of Lothe,[3] as well as that of University of California veterinarians, indicates that under favorable conditions the disease will die out in a dairy herd in a few years when replacements are limited to vaccinated heifers

*From the Division of Veterinary Science, University of California.

[1]Haring, C. M. and Traum, J.: Vaccination to control brucellosis in cattle. J.A.V.M.A., xcviii (April 1941), pp. 278-284.

[2]Mohler, J. R., Wight, A. E. and O'Rear, H. M.: Calfhood vaccination as an aid in coöperative Bang's disease (bovine brucellosis) control. J. A.V.M.A. xcviii (Jan. 1941), pp. 1-9.

[3]Lothe, H.: Observations on the use of vaccine in a Bang's disease infected herd. Veterinary Bulletin (Lederle) x (1941), pp. 43-46.

reared on the same farm. It remains to be proved, however, that this would hold for large numbers of herds. Preliminary results in California show that such success is probable.

It will require many more years to obtain answers to this and other important questions regarding the possibilities and limitations of Strain 19. There is reason to believe that better means of immunizing may be developed, but until then vaccine produced from Strain 19 is one of the best weapons available for combating bovine brucellosis.

In a personal communication under date of October 30, 1940, State Veterinarian W. J. Butler of Montana wrote: "This constant argument of saying that *Br. abortus* vaccine is still in the experimental stage gets me all worked up. If this vaccine is still in the experimental stage then all vaccines are still in the experimental stage, and that we personally admit without argument. In fact, life itself is still in the experimental stage."

Nationwide Broadcast on Brucellosis

In April, Chief John R. Mohler of the U. S. Bureau of Animal Industry, gave the whole country the story of bovine brucellosis over the facilities of NBC's Farm and Home Hour. Here is what the "steno" caught:

May I say, first of all, that there is no drug or chemical known at the present time which will prevent or cure Bang's disease. We've tried all that seemed to have possibilities and they are not effective. Vaccination will not cure a diseased animal, but it will prevent infection.

The principle of vaccination for disease has been known for a long time. It was recommended for Bang's disease as long as 25 years ago. Vaccination, you know, frequently depends upon injecting into the animal some form of the organisms which cause the disease. It is necessary to find just the right method of preparing the organism, or the right type, to produce immunity without endangering the life of the animal.

When vaccination of cattle for Bang's disease was first recommended, we tested it, and found that too often the vaccination with virulent organisms produced not immunity but disease.

Then came a long series of studies by scientists in and out of the Department of Agriculture. I could mention the names of Schroeder, Cotton, Eichhorn, and Buck, among the men who gave years to research in vaccines. It was Dr. Buck who found the strain of the Bang's disease bacillus—strain 19—which has the rare property of producing immunity without causing infection.

In 1925, he began experimenting with the vaccination of calves—as opposed to the earlier practice of vaccinating older animals.

Tests with laboratory animals, tests with cattle under controlled conditions—all requiring long periods of time—finally convinced us that in this particular strain of the organism—strain 19—we had the thing we had been looking for. This took several years of work.

Then, five years ago we enlisted the coöperation of herd owners—260 of them in 24 different states—from border to border and coast to coast. Their herds of cattle were already seriously infected with Bang's disease. We wanted to find out what would be the effect of vaccinating the calves of these herds. Starting in 1936, we have conducted this large-scale long-time study for five years now—through three and four generations of animals. The results demonstrate this fact: the use of strain 19 for vaccinating calves when they are 4 to 8 months old, preferably at 6 months of age, produces immunity to Bang's disease in almost all the animals.

By combining calfhood vaccination with the regular program of testing and slaughtering disease animals, it should be possible in some herds to eliminate Bang's disease sooner, and at less cost.

So to be sure that the laboratories which are producing the vaccine for use by veterinarians have a constant supply of just the right virulence, the Bureau of Animal Industry supplies them each month with new cultures of strain 19 which have been carefully produced. They will always be virulent enough to produce immunity, but not so strong as to cause infection.

Henry Ford, intrepid promoter of soy bean culture, has a suit of clothes containing 25 per cent of fiber made from the protein of that bean, says Robert Allen Boyer, head of the chemical laboratory of the Ford plant, in an article* showing that "wool" from soy beans is used in auto upholstery.

*Science News Letter, xxxix (March 8, 1941), p. 148.

Brucellosis in Wildlife*

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THIS PAPER is intended to bring together as many studies relating to brucellosis in wildlife as possible and to attempt to analyze them from the standpoint of importance in our Bang's disease control and eradication program.

Many of us have had an active part in the blood-testing work which has successfully eliminated this insidious disease in several repeatedly tested herds. Among the so-called clean herds, reactors have appeared occasionally to cause setbacks in the eradication program. In addition, there are a few herds which still yield reactors, after repeated testing and eliminating suspicious and reacting animals, along with proper sanitary measures.

Brucella infections have been studied in cattle, sheep, goats, hogs, horses, dogs, cats, fowls, and humans. However, there probably remains some reservoir of infection, other than these domestic animals, which perpetuates Brucella infections in our domestic stock. Until the use of vaccine is established, or some other reliable curative agent found, success of the eradication and control program depends for the most part on preventing the spread of this disease from herd to herd and from animal to animal.

The various studies which have been made in search of Brucella infection in wild animals have all questioned the possibility that wildlife may have importance as a source of infection to both man and domestic animals.

The first note of Brucella infection in wild mammals is found in the annual report of the chief of the Bureau of Animal Industry, 1917. Three female bisons of Yellowstone National Park, two of which had aborted, gave positive reactions to the serum *Brucella abortus* agglutination test.

Early in 1930[1] this infection was identified in the herd on the National Bison Range, Moiese, Montana. *Br. abortus* was isolated from the enlarged testicle of a male bison.

The Yellowstone Park bison herd was further investigated to determine the extent of infection. In 1930,[2] five serum samples were tested with three reacting positive. In 1931, between December 3-10, 110 serum samples were tested by both the rapid plate and standard tube methods, with the following results: 58 positive, 27 negative, and 25 suspects, or about 53 per cent reactors. Over the period 1931-1933,[3] 76 bulls were examined serologically and 56 (74%) reacted to the test; 317 cows were examined and 198 (62%) reacted. In 1931 and 1932 a total of 63 buffalo steers were examined and 28 (44%) reacted. Similar tests were made on the bisons of the National Bison Range in 1932 and 1933, with the following results: Of 74 cows examined, 40 (54%) reacted, and 66 (67%) bulls of the 99 examined were reactors.

This year, arrangements have been made for the vaccination of bison calves on the National Bison Range,[4] and blood samples are being taken from bisons slaughtered as surplus animals at the several other buffalo refuges in this country.

A buffalo herd in Corbin's Park,[5] New Hampshire, is suspected of suffering with *Br. abortus* infection, but the organism was not isolated from the retained placenta of

*Presented at the meeting of the Minnesota State Veterinary Association, St. Paul, Minn., January 6-7, 1941.

†Junior Veterinarian, Bureau of Animal Industry, U. S. Department of Agriculture, January, 1941.

[1]Creech, G. T.: Brucella abortus infection in a male bison. N. Amer. Vet., x (1930), pp. 35-36.

[2]Rush, W. F.: Bang's disease in the Yellowstone National Park buffalo and elk herd. J. Mamm., xii (1932), pp. 371-372.

[3]Tunnicliff, E. A. and Marsh, H.: Bang's disease in bison and elk in the Yellowstone National Park, and on the National Bison Range. J.A.V.M.A., lxxxvi (1935), pp. 745-52.

[4]Shillinger, J. E.: Brucellosis; Personal correspondence, November, 1940.

[5]Warfel, H. E.: Brucellosis; Personal correspondence, December, 1940.

a cow which had aborted its calf, nor have any serological tests been run. However, poor calf crops and this abortion cause suspicion, and require further checking.

Elks were sampled for the presence of brucellosis. Thirty-two samples from elk[2] in proximity to the Yellowstone Buffalo Range yielded three positive, 8 suspects, and 21 negative animals. Of 35 samples taken from elk about 30 miles from the buffalo range, 2 were suspects and 33 negative.

Another group of 105 elk[3] close to and on the bison range at Yellowstone Park were blood tested with 6 (5.7%) positive and 16 (15%) suspects. Thirty-six elk about 30 miles distant from the buffalo range tested serologically disclosed 2 (5%) reactors.

Laboratory tests[6] including both the rapid plate agglutination and the official tube tests, when employed in the detection of *Br. abortus* agglutinins in the serum of elk, failed to give reasonable agreement in 19 of 143 samples. The same antigens used for routine test in cattle Bang's work had continually given reasonable agreement. Strongly positive samples (1:400) in the tube tests did not show any agglutination on the plate test with the same antigens which under routine practices gave similar results to the tube test in cattle sampling. Ten minutes was often the time necessary to get any agglutination in the plate test with a sample proven positive in the tube test when using elk serum.

A thorough study of 25 moose[7] from northern Minnesota gave negative results bacteriologically and serologically except in the case of one bull moose[8] about 2 to 3 years old. This animal reacted in the dilution of 1:51,000 and the *Br. abortus* organism was isolated. There was noted a unilateral infection of the testicles in this case.

Minnesota has examined about a half dozen whitetail deer at Itasca Park, but all were negative to both the plate and tube tests. Michigan[9] and Pennsylvania[10] have tested a number of serum samples from whitetails and again the results were negative.

Br. abortus organisms were isolated from 11 (32%) of 34 wild gray rats[11] collected in France. Of these 11 only 3 had positive agglutination titres. Two of these 11 rats yielded *Br. abortus* from the blood and thus were suffering from a bacteremic form of the disease. Stimulated by this finding a serological test of 200 wild rats[12] was made in England. These animals, of ages estimated from 2 months to 3 years, did not yield a single positive or suspicious agglutination titre. Experimental studies in England on the wild rat[13] with *Br. abortus* proved that this animal may become infected with this organism by ingesting contaminated food. It was demonstrated that the infection may pass from rat to rat when they are kept in close contact. The urine of one rat contained infective organisms after experimental feeding of *Br. abortus*. In another study[14] the organism was demonstrated in the feces of some experimentally fed rats up to seven days after the infective meal.

The spleen of one rat[15] yielded a culture of *Br. abortus* in a culture study of 69 wild rats gathered in and about two infected barns in Minnesota.

A comprehensive survey of the incidence of brucellosis in wild rats[16] in several counties in England revealed infection in one

[6]Lee, A. M. and Turner, M. E.: A comparison of the tube and plate methods of testing for Bang's disease in elk. J.A.V.M.A., xc (1937), pp. 637-640.

[7]Fenstermacher, R.: Further studies of diseases affecting moose II. Cornell Vet., xxvi (January, 1937), pp. 25-37.

[8]Fenstermacher, R.: Deer at Itasca Park—Unpublished data December, 1940—and brucellosis in a bull moose.

[9]Whitlock, S. C.: Personal correspondence, Brucellosis in Deer, Nov. 1940.

[10]Gerstell, Richard: Personal correspondence, Brucellosis in Deer, Dec. 1940.

[11]Karkadinovsky, J. A.: Sur la brucellose des rats gris sauvage (Brucellosis in wild rats). Comp. rend. Soc. de biol., cxxi (1936), pp. 1611-1613.

[12]Menton, John: Brucellosis in man and animals in Staffordshire: Laboratory observations (wild rat). Brit. M. J., xxv (Dec. 1937), pp. 1273-1275.

[13]Bosworth, T. J. The susceptibility of the wild rat to infection with Brucella abortus: a preliminary note. J. Comp. Path. and Ther., 1 (Dec. 1937), pp. 345-349.

[14]Sandholm, A.: Infect. Kr. Haust., liii (1938), p. 201.

[15]Fitch, C. P. and Bishop, Lucille, M.: The wild rat as a host of Brucella abortus. The Cornell Veterinarian, xxviii (4), (October, 1938), pp. 304-6.

[16]Bosworth, T. J.: Further observations on the wild rat as a carrier of Brucella abortus. J. Comp. Path. and Therap., lili (March, 1940), pp. 42-9.

out of 167 individuals. An attempt to convey *Br. abortus* infection to cows by exposing their food for a period of three months to contamination by the droppings of experimentally infected rats was unsuccessful.

A disease resembling undulant fever may be produced in the *Macaccus rhesus* monkey.[17] It was found that large doses of the bovine type were required to infect monkeys, while the porcine type in nearly every case produced the disease without recovery.

The common pigeon has been used in the experimental studies of brucellosis. It was found in one study[18] that this bird does not apparently show clinical symptoms when infected by various injection routes, or by feeding large doses of the Bang organism. Agglutination titres (1:200-1:1,000) occurred in the blood of these birds during the period of observation, 2 to 4 months. These titres tended to drop as the time after exposure increased. The organism was not able to be recovered from any of the pigeons in this study.

Pigeons were studied[19] after being infected with all three types of Brucella organism (bovine, suis, and melitensis). The pigeons appear to be susceptible to all three types, but their ability to produce agglutinins is not constant. Diarrhea was observed shortly after exposure in some of the pigeons. The infection was not fatal. The *Br. abortus bovis* was recovered from the spleen of one pigeon that had been injected intravenously 30 days previous to examination. Microscopic and macroscopic lesions found were very similar to those found in the turkey.

In this same investigation[19] the turkey, pheasant, duck, and goose were experimentally infected with all three types of Brucella. The disease was fatal in the turkey only within 80 to 119 days. Symptoms: in the turkey, paleness about the head and wattles, diarrhea, and emaciation with loss in weight; the pheasant, no symptoms; the duck, increased respiration with slight rattling and wheezing; the goose, symptoms very similar to those of ducks. The turkey and pheasant consistently developed specific agglutinins. The goose and duck, and the pigeon varied in their ability to produce agglutinins, particularly when exposed by the oral route. Microscopic lesions are recorded for all five species of birds (turkey, pigeon, pheasant, duck, and goose): "Perivascular foci of hyperplasia of histiocytes with congestion of the spleen; foci of hyperplasia of histiocytes with hydropic degeneration, and focal necrosis in the liver; foci of hyperplasia of histiocytes along the bronchioles, often with extension into the adjacent lobule, and cloudy swelling intermingled with necrosis of the tubular epithelium of the kidneys, usually accompanied by hyperplasia of many of the glomerular tufts, were the principal microscopic lesions shown in the organs of all exposed birds."

The organism was recovered from very few of the experimentally infected birds (spleen and liver). In one duck the *Br. abortus suis* was recovered from all organs.

A series of 91 samples of blood were taken directly from the heart of English sparrows.[20] These were examined serologically by the rapid plate test for a Brucella agglutinin titre. The results were: slight agglutination, 1:25 dilution in 2 males and 1 female; negative in 45 males and 43 females.

In reviewing these studies the following points are of particular interest:

1. *The bison* is susceptible to *Br. abortus* infection; 70 per cent of the bulls and 44 per cent of the steers were positive reactors to the agglutination test. These figures are very high for males when compared with the average incidence in cattle males. This may be due to the fact that the infection is recent for a more susceptible host. A few cattle were pastured on part of the buffalo range up to 1919. These cattle may be accountable for the intro-

[17]Huddleson, I. F. and Hallman, E. T.: J. Infec. Dis., xlv (1929), p. 293.

[18]Koegel, A.: Beitrage zur abortusforschung. Münchener Tierarzt. Woch., lxxiv (1923), p. 617.

[19]Emmel, M. W.: The susceptibility of the turkey, pigeon, pheasant, duck, and goose to Brucella disease. J.A.V.M.A., lxxvii (1930), pp. 185-197.

[20]Clark, C. F.: English sparrows as possible carriers of brucellosis. Mich. Quart. Bul. Agri. Exper. Sta., xvii (May, 1935), pp. 224-25.

duction of the disease. Since our buffalo herds are separate from domestic cattle, in most cases, their brucellosis problem is one of greater concern to veterinarians in conservation work.

2. *The elk* is proven an animal susceptible to *Br. abortus* infection, as demonstrated by the presence of specific serum agglutinins. There is evidence that the incidence of infection is higher in elk that inhabit the same area with infected buffalo, than in elk ranging about 30 miles away from buffalo range. This may suggest the buffalo as the source of infection for those elk it contacts. Laboratory tests with elk serum evidenced great irregularity between the rapid plate test and tube test. This occurred in spite of the use of three antigens which gave constant reasonable agreement for cattle serum tests. Those who may consider use of the agglutination test for elk should remember these irregularities. Why they occur has not been answered.

3. *One bull moose* yielded a culture of *Br. abortus* and a very high blood titre. A test of the cattle in the area surrounding the Beltrami Game Refuge, where this moose had been taken, did not uncover any infection. It is suggested that during the severe drought infected cattle that had been set loose to roam carried the organism into that area.

4. *Deer* have been considered a possible reservoir of Brucella infection, but the few blood tests conducted by various states have proved negative. There are those investigators who feel that the infection does exist among these animals.

5. *The wild rat* is definitely susceptible to natural infection and can pass viable organisms in the feces and urine. There is no proof as yet that infected rats can pass the organism back to domestic cattle, although they can pass it among themselves. This animal will require additional study to determine its potentialities as a spreader of Brucella infection.

6. *The pigeon*, the turkey, the duck, the pheasant, and the goose are all susceptible to the various Brucella organisms when fed or injected with them. Only the turkey succumbs to this infection. There is no indication that these birds pass the organisms along to cattle or even among themselves.

7. *The English sparrow* has not yet been incriminated with the ability to harbor the Brucella organism. Testing the blood of these birds for agglutinins is of doubtful value until the infection is studied experimentally and the susceptibility of this bird determined.

Fur Farming Has Competition

The American fur farmers have competitors in Japan, India, Canada, Australia, Russia, China, Persia, Afghanistan, South America, and other places not blockaded by the war. The number of skins exported by the United States fur farmers in 1940 was 12,636,221, valued at $11,411,545, while the foreign producers sold the American people during 1940, 36,046,180 skins, valued at $79,618,751.

The domestic sales for 1940 were $40,654,000, an increase of about $9,000,000 over 1939. The sales for January and February, 1941 (incomplete) are given as slightly over $8,000,000. The war has closed important European markets for American-raised furs.

"I'd Be Disappointed If He Didn't"

When a reporter of the *San Jose* (Calif.) *Mercury Herald* asked State Veterinarian Duckworth point blank, "If you had a son, would you send him to a veterinary college?" the reply was, "I would be disappointed if he didn't go to a veterinary college, but because of the fact that there is no school in California where he could get the training, I doubt if he would be able to go because the states maintaining schools are crowded with their own boys."

The reporter was none other than the president of the California division of the Farmers' Educational and Coöperative Union, who is backing a bill to appropriate $1,000,000 for founding a veterinary school in that state.

Nonspecific Hemoglobinuria and Acute Pulmonary Emphysema of Cattle as Essential Enterotoxemias*

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THERE REMAINS a doubt in the mind of the writer as to whether these diseases which differ in so many important ways should have been joined together for the purpose of this discussion. The reasons for so doing are, briefly, that both of these diseases may occur simultaneously in a herd of cattle, and that similar conditions usually prevail where either disease occurs. We shall first consider hemoglobinuria. (A more correct designation would be hemoglobinemia, as the kidney is simply eliminating the hemoglobin present in the blood plasma.)

NONSPECIFIC HEMOGLOBINURIA

The prefix "nonspecific" is used to immediately separate the hemoglobinuria under discussion from those forms caused by blood parasites. Unfortunately, Craig[1] writing in Hoare's Veterinary Medicine states that all hemoglobinuria in cattle is due to the presence of piroplasma. This unwarranted statement has hindered the progress which might have been made in elucidating the true nature of this condition.

Historical.—Investigations of this condition have been few in number. Apart from the description given in standard veterinary textbooks, one of the earliest reports is that of Wallace[2] in Great Britain in 1926. A most comprehensive report was published in Sweden by Hjarre[3] in 1930. In 1933[4] we published the results of an investigation into the disease as it existed in the province of Ontario. Farquharson and Smith[5] contributed an article on the disease as seen by them in Colorado. An excellent report was made by Madsen and Nielsen[6] in 1939, on observations made by them in Utah. A further publication by these authors has just appeared. It is thus evident that the disease has only recently attracted attention on this continent. Further, we might add that up to the present time the true nature of the disease remains undetermined. This fact acts as a constant stimulus to the research worker.

Description of the Disease.—Contrary to the statement of some writers, hemoglobinuria may occur in cows, either before or after calving, in calves, heifers and very occasionally in the male animal. Most of the reports made have dealt exclusively with post-parturient hemoglobinuria, no mention being made of the condition as occurring under other circumstances. Certainly the most severe and fatal cases are those following parturition. During some fall seasons when cattle are turned out on kale or rape, hundreds of mild cases occur in certain parts of the province of Ontario. Animals of all ages are affected.

Symptoms.—The chief symptom is the passage of urine, the color of which varies from pink to a coffee brown. There is little or no rise in temperature. The pulse is always accelerated (80-120) and the heart beat is forceful, frequently pounding so heavily on the thoracic wall that the impact may be heard at a distance. This is one of the truly characteristic features of the disease. A fetid diarrhea frequently precedes the appearance of the red water; this

*From the Ontario Veterinary College; presented before the Section on Research at the 77th annual meeting of the AVMA, Washington, D. C., August 26-30, 1940.

[1]Hoare, E. Wallis, A System of Veterinary Medicine, Vol. 3, pp. 207-208.

[2]Wallace, W. R., Parturient Hemoglobinuria of Bovines. Vet. Rec. vi (1926), 47, pp. 1035-1038.

[3]Hjarre, A. Die puerperal hemoglobinemia des vines. Act. Path. et Microbiol, Scan. Sup. vii. 1930.

[4]Schofield, F. W., Rep. Ont. Vet. College (1933), pp. 42-61.

[5]Farquharson, J. and Smith, K. W., Post-parturient Hemoglobinuria of Cattle. J.A.V.M.A., xcii (1935), pp. 37-39.

[6]Madsen, D. E., and Nielsen, H. M. Parturient Hemoglobinemia of Dairy Cows. J.A.V.M.A., xciv (1939), 577-586.

may be followed in a day or two by constipation which not frequently terminates in paralysis of the gut. Respirations are not conspicuously affected. In severe cases, as the disease progresses, jaundice appears, the milk flow is greatly diminished and the animal becomes extremely weak. Necrosis of the extremities may occur.

Cause.—The exciting cause of the disease has not yet been determined. We are of the opinion that the disease is essentially an enterotoxemia.

Predisposing Causes.—The two main predisposing causes to severe hemoglobinuria are: the heavy consumption of nonconcentrated foods, especially turnips, sugar-beet pulp, kale, rape and green alfalfa, and second, the existence of the post-parturient state. Other important factors are heavy milk production and phosphorus-deficient food.

Phosphorus Deficiency.—Low inorganic phosphorus is so frequently found when the blood is examined that it must be considered as the most important contributing factor. The phosphorus may be as low as 0.5 mg. per cent. Madsen is inclined to the view that the disease is essentially an aphosphorosis. We have seen a number of mild cases in which the blood phosphorus was well within the normal range. We, therefore, at present consider the decrease in phosphorus as a very important predisposing cause. The fatal cases usually occur in heavy milkers and at a time when the phosphorus is greatly depleted, *i.e.*, two to three weeks after calving.

Illustration of the Relationship Between Hemoglobinuria and Phosphorus Deficiency.—Forty western steers and heifers were placed on a 30-acre field of rape. One week later 12 local cattle, heifers and pregnant cows were added to the western group. In two weeks three of the local cattle were affected with hemoglobinuria. A few days later three more cases occurred. Two of them showed signs of acute pulmonary emphysema. All were removed and fed a liberal quantity of disodium phosphate. Blood analyses of members of the local group showed low phosphorus, average 2.5 mg. per cent. The owner had noticed these animals chewing sticks and bones during the summer months. Ten days after the removal of the local cattle the western cattle began to persistently chew the wooden fence surrounding the field. The cattle were not removed, but troughs containing dipotassium phosphate, bran and oil cake were placed in the rape field. The cattle devoured the ration ravenously and within ten days the wood chewing had ceased. The cattle were pastured on the rape until Christmas, a period of almost two months. All remained well.

There is a common saying, among the farmers in this vicinity, "Never put a fresh cow on rape." They have learned by experience that fatal hemoglobinuria may follow.

It may have been noticed that the foods listed above as being conducive to hemoglobinuria are all low in phosphorus, and most of them show a serious imbalance in the calcium-phosphorus ratio.

Gross Pathology.—Among those who have studied the disease there is a general agreement as to the significant pathological changes. The carcass is icteric, the blood pale and thin. It may have a brown color due to the presence of methemoglobin. The liver is pale and friable and has a finely mottled appearance suggestive of focal necrosis. The gall bladder is greatly distended with a thick, vivid bile. The kidneys are coarsely mottled and chocolate-brown in color. The abomasum shows slight congestion, but the folds of the mucous membrane may be very edematous. There is a catarrhal exudate in the small intestine and small areas of hemorrhage are seen in the submucosa. The ingesta may be slightly blood stained. These are characteristic hemorrhages. The visceral lymph glands are usually edematous.

Histopathology.—The liver shows extensive central necrosis. The whole or greater part of a lobule may be involved. At the periphery the cells show fatty degeneration. The bile canaliculi are distended with bile pigment. The mucous membrane of the small intestine shows necrosis of the villi

and not infrequently the necrosis has penetrated to the submucosa—striking in the absence of marked inflammatory reaction. In the kidney there is degeneration and necrosis of the epithelium of the convoluted tubules. There is a heavy deposit of hemosiderin, chiefly in the epithelial cells. In the spleen there is an abundant deposit of hemosiderin.

The Bacteriological Findings.—As previously reported *Clostridium welchii* has been found in enormous numbers in the small intestine in acute fatal cases. Its presence and the ability of the organism to produce a powerful hemolysin led to the theory of an enterotoxemic cause of hemoglobinuria. More recent studies have disclosed the fact that *Cl. welchii* is not present in abnormal numbers in the feces of subacute and mild cases. It is possible that organisms which flourish in the small intestine may not find the environment of the large intestine suitable for their development; hence, fecal examination may be misleading. In fecal examinations in red water one usually finds that organisms of the colon group, which under ordinary conditions predominate, are greatly reduced in number. The heavy consumption of succulent food has definitely altered the intestinal flora. Streptococci are present in large numbers, and in many cases numerous colonies of sporulating bacilli possessed of marked hemolytic power are also present.

Is an Enterotoxin the Cause of Hemoglobinuria?—It has already been mentioned that the direct cause, the agent which is responsible for the destruction of the blood cells, is at present unknown. We have, therefore, to postulate some theory based upon the ascertained facts of the disease, and see to what extent the disease may be explained on the basis of this theory.

The theory we have postulated is that toxic substances due to bacterial action are formed in the intestine and upon being absorbed cause the destruction of the red blood cells. We must admit that up to the present time the evidence of such a toxic substance is purely circumstantial.

EVIDENCE SUPPORTING THE ENTEROTOXEMIC THEORY

1. *Histopathological.*—As already stated the liver shows very severe damage. This injury is not due to infection, but has the character of a severe toxic necrosis. Further, the damage to the intestinal mucous membrane suggests the action of a toxic substance, as the inflammatory response is almost nil. The renal necrosis likewise indicates the effect of a powerful toxin.

2. *Clinical.*—The frequency with which the disease is preceded by a fetid diarrhea indicates intestinal disorder with putrefaction of the ingesta. The pounding heart might truly be described as a toxic heart. The tendency to marked constipation which often follows the diarrhea with no bowel movement for several days is indicative of paralysis of the intestines, apparently of toxic origin.

3. *The Beneficial Effect of Antitoxin.*—*Cl. welchii,* antitoxin concentrated globulins 10,000 units, was used in three severe cases. In two cases the animals showed definite improvement. The hemoglobin ceased to be eliminated in the urine within 24 hours. In one of these cases there was marked paralysis of the gut, but the antitoxin had no beneficial effect on this condition. The third case was not influenced by the antitoxin.

4. *Analogous Conditions in Man and Other Animals.*—In man good results have been reported from the use of *Cl. welchii* antitoxin in preventing the severe toxemia of ileus paralyticus. Hemoglobinuria has been reported in some of these cases.

Among animals we have the disease pulpy kidney which is recognized as a necrosis of the kidney due to the absorption of specific toxin from the intestine.

EVIDENCE AGAINST THE THEORY OF AN ENTEROTOXIN

1. Our inability up to the present time to demonstrate the presence of a hemolytic toxin in the intestine. No experiments have been made with fecal extract from acute

fatal cases, which we rarely see. Extracts made from feces are of doubtful value.

2. Inability to produce the disease experimentally by feeding fecal matter and cultures of hemolytic organisms to susceptible animals. Tincture of opium was used in some cases to bring about constipation. The results were all negative.

In spite of these negative results we feel that more experiments must be undertaken in searching for a hemolytic enterotoxin before the theory is abandoned.

THE PRODUCTION OF EXPERIMENTAL HEMOGLOBINURIA

Before concluding I wish to mention some of the experiments we have made in attempting to produce hemoglobinuria.

The basis of all the experiments has been the exclusive feeding of either rape or turnips over a long period of time. This was modified in some instances by the addition of a culture of *Cl. welchii*, soil from "red water" farms, or heavy bleeding of the cattle before entering the experiment. The results are briefly tabulated.

GROUP A—Rape-Fed Cattle

Ten animals were fed on an exclusive diet of rape for periods of time varying from two to four weeks. Two of the ten were milking.

Results. Two animals, a cow and a heifer, neither in milk, developed clinical hemoglobinuria. The heifer died showing typical symptoms.

Post mortem, an acute hepatitis was discovered due to extensive infection with *Alcaligenes necrophorus*. In the cow the disease was mild, continuing for ten days when the urine became normal in color. The animal remained in good condition, and showed only slight clinical evidence of disease. This cow was low in phosphorus at the beginning of the experiment—3.7 mg. per cent. After eating rape for three weeks the inorganic blood phosphorus was 30 mg. per cent.

Mention must be made of one of the two fresh cows (Ayrshire). On the tenth day of rape feeding this cow showed the characteristic symptoms which usher in hemoglobinuria. The heart was pounding, and there was a fetid diarrhea, the feces containing enormous numbers of *Cl. welchii*. This condition continued for 48 hours after which the symptoms slowly disappeared and the animal returned to normal. (A veterinarian who had wide experience with hemoglobinuria stated, "She will have red water in twenty-four hours." She did not.)

GROUP B—Turnip-Fed Cattle

Four animals were used in this experiment. One, a heifer from a farm where hemoglobinuria had recently occurred. One, a young cow which had freshened two weeks previously. Two middle aged cows, both dry. The feeding was continued for from three to four weeks. The consumption of turnips was about 75 pounds per day. A small quantity of hay was fed at noon.

Results. Apart from a slight falling off in condition no symptoms of hemoglobinuria were manifest at any time. The animals remained well.

These experiments indicate the difficulty of reproducing the disease when normal animals are used in the experiment. The feeding of abnormal amounts of foods known to be conducive to the development of hemoglobinuria is of itself insufficient to cause the disease. Other factors must be present. One such factor is a phosphorus deficiency. Another is, we believe, the presence in the intestine of hemolysin producing bacteria.

ACUTE PULMONARY EMPHYSEMA OF CATTLE

This rather rare and obscure condition is included in this paper, because we believe that in the enzoötic form it is the manifestation of an enterotoxemia.

Textbooks do little more than mention the disease. It occurs in the enzoötic form in Belgium. The etiology is not known. Recently W. J. Bulter reported an outbreak in cattle in Montana. The condition followed the removal of cattle from dry summer range to green bottom land. Most of the cases were fatal within a few days.

Observations.—The incidence of the disease is variable. Many or few cases may occur annually and always during the fall months. As previously stated the disease occurs under the same conditions as favor hemoglobinuria, *i.e.*, pasturing cattle on kale and rape. In fact the disease is commonly known as "rape poisoning." In one severe outbreak involving six calves and reported by us in 1924, there was no definite history of rape feeding. It is probable that these calves fed only on old grass. The

usual history is that the cattle have been feeding heavily on rape for from ten to fourteen days. The disease frequently develops suddenly: the cattle are apparently well one day and profoundly sick the next. In milder cases the onset is not so abrupt. Animals of any age may be affected. Hemoglobinuria may occur at the same time.

Symptoms.—Severe dyspnea is the most pronounced symptom. The animal stands with the head extended and appears to be gasping for breath. A grunt usually accompanies each expiratory act. The pulse is increased 60-80. The temperature is either normal or slightly elevated. Rumination has ceased, and peristalsis subdued. Constipation is usually present. In severe cases, as the disease progresses, subcutaneous emphysema appears in the cervical region and over the dorsum. The condition is frequently diagnosed as hemorrhagic septicemia.

Postmortem Findings.—The lungs show widespread interstitial emphysema. In severe cases there is general edema with congestion or extensive hemorrhage. The appearance of the lung is quite distinct from that of ordinary lobar pneumonia. All the lobes appear to be equally affected. The liver is pale and friable. The spleen is normal. The kidneys are pale. The abomasum shows slight inflammation. Hemorrhages may be present in the manyplies of the omasum. The small intestine may show scattered areas of acute inflammation, or merely ecchymosis in the submucosa. There is an excess of bile and mucus in the lumen of the bowel.

Histopathology.—The alveoli of the lung are extensively damaged, the walls are ruptured and many of these collapsed air sacks are seen crowded together giving the parenchyma a solid appearance. The capillaries are engorged and both the alveoli and interstitial tissue are edematous. Large and small irregular air spaces permeate the whole tissue. There is a slight cell infiltration with polymorphonuclear leucocytes and eosinophiles. Some alveoli show the presence of desquamated alveolar cells.

The mucous membrane of the duodenum shows necrosis of the villi with slight monocyte infiltration of the submucosa. In the liver there is widespread cloudy swelling. Areas of necrosis are also present. The convoluted tubules of the kidney show extensive necrosis of the epithelium. Capillary congestion is marked.

CONCLUSION

Due to our limited knowledge of this disease, we are unable at present to make any definite statement as to its toxic nature. We incline to the view that the disease is a manifestation of a primary enterotoxemia.

Food Poisoning

In consequence of the American abundant life, food poisoning was never an important medical problem in this country. With the exception of botulism contracted from the eating of improperly canned food, and this has become rare, the gastrointestinal infections of the American population are not common. The abundance of fresh meat and the scrupulous veterinary inspection of meat products keep food poisoning off of the medical headlines.

Enriched Bread

The term "enriched bread" according to the Consumers' Council of the U. S. Department of Agriculture means bread made from a flour which has in it specific amounts of at least the two vitamins, thiamin and nicotinic acid, and one mineral, iron. Enriched flour may also contain riboflavin and vitamin D and the two minerals, calcium and phorphorus.

Attention is invited to the fact these flours are not medicines and that no curative properties should be made for them. The important thing, the Council advises, is to eat well-balanced meals.

Farmers' Bulletin No. 1871, USDA, is entitled "Brucellosis of Cattle," a term that is gradually replacing "Bang's disease" in the literature of science.

Some Present-Day Problems in Clinical Diagnosis*

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THE VETERINARIAN engaged in general practice must be an economic asset to his community to justify his existence. To attain this end, he must be a good diagnostician. Diagnosis and treatment are the two essential acts in the practice of veterinary medicine. The treatment, although the chief end in view, is manifestly dependent upon and subordinate to the diagnosis.

The term diagnosis is commonly defined as an art and, as is true of most arts, it appears in some individuals as a talent. It is said that artists are born, not made, and this is true to a certain extent with diagnosticians. However, one's skills can be developed, and anyone capable of completing a modern course in veterinary medicine can become a fair to good diagnostician if he puts forth sufficient well-directed effort. We prefer to think of diagnosis as a scientific determination, but when considered as a science, we recognize that it has not attained an invariable state of perfection. While constantly being developed, it is still imperfect and unstable. Our goal, in all instances, should be to render a diagnosis that is both correct and complete. Unfortunately, we do not always reach our ideal. The best of us make many mistakes. It is our mistakes and their causes that I wish to discuss. Martinet, a French physician, writing on the subject, "Mistaken Diagnoses —Their Causes," says so well what I wish to say in introduction that I quote:

> Correct and more or less complete diagnoses are arrived at as the result of a series of clinical investigations and mental processes. Clinical analysis and mental processes show infinite variation in different cases. Simple visual examination may at times be sufficient; more often, however, the application of various more or less complex technical procedures will be required. At times, the diagnosis will result from a "fulgurant" mental process—one of reminiscence, of that which has already been witnessed; the diagnosis will be brought down like a bird on the wing, but much more often it will necessitate a more or less laborious, reasoned combination of the numerous clinical factors collated in the course of a patient, systematic examination.
>
> Whether fulgurant or labored, and whether the result of superficial or systematic examination, however, the diagnosis is by no means always correct. Mistaken diagnoses are unfortunately very frequent—too frequent. Yet nothing is more instructive than a mistaken diagnosis which is recognized, analyzed and reflected upon; its informative value is generally much greater than that of a correct diagnosis, provided the analysis made is carried out patiently and systematically. It may even be questioned whether a publication devoted to these mistaken diagnoses and their causes would not prove of the utmost service.
>
> Upon careful analysis of mistaken diagnoses, whether the latter have been revealed by the subsequent course of the case, by the application of suitable technical procedures, or, *in extremis*, by the autopsy, their causes are definitely found to be: ignorance, insufficient examination, and error of judgment.

Causes of Mistaken Diagnoses

The author elaborates on these three fundamental causes, producing an outline that with some modifications serves admirably as a guide for a more or less detailed discussion of the causes of mistaken diagnoses.

1) Ignorance: (a) gross ignorance, (b) relative ignorance, (c) conditions at present undiagnosable.

2) Faulty examination: (a) bad habits in diagnosis, (b) defective diagnostic procedure, (c) examination under unfavorable circumstances, (d) unsatisfactory patients, (e) faulty technic.

3) Errors of judment: (a) ignorance, (b) obsession, (c) emotional state.

I borrowed this outline and applied it to our own problems shortly after it appeared 18 years ago. It proved so satisfactory that I do so again.

*From the Veterinary Division, Iowa State College; presented before the Section on General Practice at the 77th annual meeting of the AVMA, Washington, D. C., August 26-30, 1940.

IGNORANCE

There are gradations of ignorance, and beginning at the bottom of the scale we recognize (a) gross ignorance, happily an exceptional variety. This refers to ignorance of fundamental facts for which the veterinarian has no excuse. It may and does lead to astounding errors in diagnosis.

a) *Gross Ignorance.*—Examples of mistakes from this cause may be seen in some of the atrocities perpetrated against the cow thought to be sterile. Without a working knowledge of the anatomy, physiology and pathology of the genitalia, men have made glaring mistakes in diagnosis, resulting in immeasurable damage. Equally astounding errors are made by men with some years of experience in large animal practice or in some other field of veterinary endeavor who almost overnight become specialists in diseases of small animals through the simple expedient of having a sign erected announcing the sudden metamorphosis. It would be useless and out of place to cite additional instances. The remedy is evident, consisting exclusively of a better clinical training.

b) *Relative Ignorance.*—Moving up the scale, we consider those mistakes due to (b) relative ignorance. These include, first, those mistakes due to ignorance or recent clinical advances. In this respect, all are more or less ignorant. Progress in the field of biological research is now so rapid that the clinician finds himself hard pressed to separate the grain from the chaff and does not always succeed in doing so. The energetic, over-zealous individual frequently finds himself in a difficult position for having accepted some novel biological innovation which when put to the test either quickly proved its worthlessness or demonstrated only a feeble significance.

On the other hand, the ultraconservative individual accepts nothing new that does not readily fit into the narrow field of his previously acquired knowledge. We have much sympathy for many of this second group. They have been misled by the publications of so many men that they have become suspicious of all. Men of the first group diagnose diseases that do not exist, while those of the second miss some that do.

The attitude of the conscientious, broad-minded individual is that of watchful waiting. His mind is open to receive anything that appears logical or has really demonstrated its worth. The practitioner is and should be just a little behind the line of actual clinical advance.

During the last two decades much information on vitamins has been uncovered; volumes have been written; we are all vitamin conscious. Yet with but few exceptions—blacktongue in dogs, rickets in birds, isolated instances of vitamin D deficiency, etc.—we have not been able to definitely incriminate vitamin deficiencies in the field. We consider them a possibility in many of our unsolved problems; usually, however, we think there is slight probability. Time and careful observation will clarify this situation. Thus, a mistaken diagnosis or failure to make a diagnosis because of ignorance of recent advances is not always a reflection upon the efficiency of the veterinarian.

This, however, does not excuse those of us who fail to recognize existing diseases that have been repeatedly described in the literature over a period of years. Any one of a number of our diseases of metabolism serves to illustrate. Acetonemia of cows was first described as such in Germany in 1908. It has been well described in the veterinary literature of this country during the past ten years. It apparently is not uniformly disseminated throughout the country and where it is known to occur is not as prevalent in some years as in others. However, enough is known of its occurrence to indicate that many who have not diagnosed it are simply overlooking it. Most veterinarians who are now diagnosing the disease are aware that they overlooked it for many years. Tetany in calves, experimentally produced, has been referred to by chemists engaged in nutritional studies for 20 years or more. There have not been many references to it in our literature. I am convinced that it is more prevalent than the literature indicates.

During the years of 1921 and 1922, I was

privileged to watch the development of symptoms in calves experimentally fed on a calcium-deficient ration. The tetany and other nervous manifestations seen in these calves have since been observed by the writer many times and numerous enzoötics have been called to my attention by others. Some veterinarians are recognizing this condition for just what it is and diagnosing it as a calcium deficiency, and in great measure are treating it successfully. My chief reason for mentioning this particular condition is that in most of the herds called to my attention a diagnosis of hemorrhagic septicemia (nervous form) had already been made followed by the unsuccessful use of vaccines.

Grass tetany is another disturbance in metabolism that is being recognized by many in this country and undoubtedly overlooked by more. This condition has been extensively observed and reported in many European countries, but the reports from this country are meager; thus, many are not aware of its existence here.

Failure to recognize the existence of some of these well-described diseases comes from carelessness in our reading. I confess that I frequently find myself reading scientific journals as I do the daily paper. I scan the headlines for something that appeals to my particular interest or curiosity. However, I do not recommend this dangerous practice. We are too little concerned oftentimes about the clinical problems reported from foreign countries or distant localities in our own country and, thus, narrow in our reading. The greater one's knowledge of existing veterinary literature, the better his appreciation of the biblical admonition, "There is no new thing under the sun."

c) *Conditions at Present Undiagnosable.*—When we eliminate those diagnostic errors preventable by complete knowledge of contemporary medicine and by application of appropriate diagnostic technic, there still remains a considerable percentage of mistaken diagnoses which are unavoidable in the present state of veterinary science. These fall in the group under our general heading of ignorance, (c) conditions at present undiagnosable.

This group comprises: (1) The cases in which the puzzle presented before the clinician by the aggregate of data obtained is insoluble; the cases in which a diagnostic mistake recognized and reflected upon leads to a sincere and humble conclusion that no responsibility attaches to the clinician either through ignorance or error of judgment and that the mistake made, actually unavoidable, would subsequently be committed again under like circumstances. Such conditions are frequently encountered, *e.g.*, tumors, abscess or cyst of inaccessible organs. (2) Cases undiagnosable because they are being overlooked. There has been no time in the history of veterinary medicine when this has not been true. The future course of events will unquestionably show that we are today dealing with abnormal states in which, by virtue of tradition, we render incomplete or erroneous diagnoses.

FAULTY EXAMINATION

Insufficient examination is by far the factor most frequently responsible in mistaken diagnoses. The causes of such faulty examination are many and some of the more common ones will be considered.

a) *Bad Habits in Diagnosis.*—These usually result from an innate tendency toward laziness and carelessness. Their customary manifestations are a symptomatic diagnosis and a corresponding symptomatic treatment. Effort is reduced to a minimum. Not enough energy is expended to make possible the acquisition of an adequate history. Many symptoms and lesions go unnoticed. Bad habits in diagnosis can easily be acquired.

Veterinary practice has been and still is undergoing rather marked change. Many practitioners are partially or completely subsidized, such as those employed in milk and meat inspection, state and federal coöperative projects in the eradication of tuberculosis and Bang's disease, and politics. This type of diversion from ordinary practice can and sometimes does breed indifference toward correct diagnostic pro-

cedure when routine calls interfere with the carrying through of some special assignment. Likewise, a flare for some particular phase of practice may cause one to neglect something outside this specific field. We have seen practitioners so engrossed in swine practice as to jeopardize the best interests of an ailing member of any other species placed under their care. The same thing frequently occurs when a man in general practice begins to develop an intense interest in small animal practice. More frequently does the man interested primarily in large animals blunder when required against his will to examine a sick dog or cat.

A short time back, I watched a young veterinarian removing the completely undermined horny frog from the hind foot of a horse. Some foreign body had perforated the horny frog and penetrated the pododerm, resulting in a suppurative pododermatitis. I was informed that when the horse first showed lameness, the nearest veterinarian was called and quickly made a diagnosis of lymphangitis. The leg was slightly swollen from the hoof to a point above the hock, and I presume this was the symptom upon which the mistaken diagnosis was based. He made another visit a day or so later without discovering his error.

A few weeks ago a man brought a dog to the hospital and requested me to examine its right eye. The lids were partially closed and there was a copious discharge from the inner canthus. On close examination a localized, intense opacity of the cornea was observed peeping from beneath the lateral edge of a protruding nictitating membrane. The location of this opacity determined the next step in the examination. Some local anesthetic was instilled into the eye and presently the membrana nictitans was grasped with a forceps and elevated to expose its deeper surface. As the owner looked on I removed a rather large, spike-covered seed. Profanity poured from the man's lips as he told us that a veterinarian had had this eye under his care for three weeks, and on one occasion had kept the dog in his hospital for a period of three days. I cite these ridiculous performances to point out that these owners received no service, that because of laziness and indifference a clinical examination had not been made in either case.

b) *Defective Diagnostic Procedure.*—This group is separated from bad habits solely for didactic reasons. A diagnosis to be correct must, in so far as existing conditions permit, also be complete. One must make a complete and systematic examination of the patient and not be content to examine one organ or part to which attention has been directed by the owner or caretaker.

I well remember one of my very early patients. During my second week in practice, a man came into the office and requested that I float the teeth of one member of a team of horses he had standing outside. I eagerly accepted his invitation, backed the horse into a corner, examined the teeth for abnormalities and proceeded to remove the offending enamel points. The task was soon finished and I am still convinced that the work was well done. I simply did what was asked of me. I scarcely looked at any part of this horse except its mouth. I didn't ask this man why he thought the horse needed some dental work. I didn't obtain the animal's temperature, pulse or respirations. I did none of the things I should have done. I received from this owner $1.50, my fee for the service. I received from the horse a very valuable lesson in clinical diagnosis. It was a 7-year-old horse from the country, a recent addition to the man's stable; it was not eating as it should and the owner concluded that the teeth needed attention. The animal was coming down with influenza, as I learned under rather painful circumstances some days later.

Mistakes due to defective diagnostic procedure also result from a too general tendency to confine one's examination to a part, organ or system to which attention has been called because of a major symptom. I think of no better example than persistent vomiting in small animals. Vomition naturally directs one's attention to the digestive system and too frequently a mistaken diagnosis of some digestive disorder,

usually gastritis, is made because of failure to make a complete examination. Persistent vomiting is a common symptom in acute nephritis, also in pyometra.

There is no safe short cut in diagnostic procedure. The good diagnostician is methodical by nature or because of self-discipline. He follows rather religiously a well thought out plan that minimizes the possibility of overlooking something.

c) *Examination Under Unfavorable Conditions.*—Certain factors are essential to a proper clinical examination. One must have proper light and the necessary instruments. Especially when making calls in the country, the practitioner may find it necessary to carry some source of satisfactory light. Small lesions, discolorations, parasites, etc., can be overlooked in improper light. Good light, natural or artificial, can invariably be provided.

If one is to effectively practice auscultation and percussion, the patient must be in quiet surroundings. How much time have you wasted trying to auscultate to the accompaniment of bellowing cows, creaking stanchions, the clatter of feed and litter carriers, slamming doors and all the other possible barn noises?

Suitable assistants are indispensable in some instances, especially in providing proper restraint. Instruments needed are determined by the nature of the case. The clinical thermometer is essential at all times. One should always hesitate to give a definite diagnosis when the patient has been examined under unfavorable conditions.

In most instances, the conditions can be made more favorable. The patient often can be moved to suitable surroundings. One should not ask to be excused for a mistake due to examination under unfavorable conditions unless correction of these conditions was beyond one's power.

d) *Unsatisfactory Patients.*—These are not common. We do encounter patients that are difficult and sometimes impossible to examine properly. This may be due to timidity, nervousness or viciousness. Many times the confidence of such patients can be obtained by careful approach, patience and perseverance. In this connection, it must be remembered that oftentimes the difficulty is primarily due to a nervous veterinarian instead of a nervous patient. The man with unnecessary fear of animals seems capable of converting the most docile creature into a rebellious one. However, unsatisfactory clients (owners or caretakers) are probably more often a hindrance than are unsatisfactory patients.

e) *Faulty Technic.*—That faulty technic leads to mistaken diagnoses is obvious. The veterinarian must know how to palpate, percuss and auscultate. These things have to be learned. One's sense of touch has to be developed. Especially is this of importance in rectal palpation. One must be able to appreciate the normal tension and resistance of tissues.

Rectal palpations are so infrequent with some individuals that they are a waste of time when attempted. The examiner is confused by anatomical relationships. His hand is untrained and does not reveal existing conditions. He injures the rectal wall unduly in his clumsy, awkward effort. The experienced veterinarian, as a result of careful practice, is able to palpate the abdominal wall of small animals so effectively as to make it possible to determine the size, consistency and location of solid objects, such as tumors, foreign bodies, fecal impactions and feti, by compressing both sides simultaneously. The novice attempting this suddenly thrusts the ends of his rigid fingers against the wall, provoking an irreducible reflex resistance that renders examination impossible or leads to error. This can be observed almost daily when working with students.

Percussion is an art which must be cultivated. One learns to obtain accurate information through percussion by persistent practice. Likewise, much practice is necessary if one is to gain accurate knowledge through the use of auscultation. Extraneous noises are almost sure to be heard most of the time. The ear must be trained and one must be so coördinated as to make possible the exclusion of these extraneous sounds that attention may be focused on the physiological or pathological ones. In other words,

one must know what he is striving to hear. I know of nothing more difficult to get the average students to do voluntarily than to practice percussion and auscultation on normal animals. They are not interested in building a proper foundation by becoming familiar with the physiological sounds under varying conditions. They are eager to examine abnormal animals, yet can get little information from their efforts until they possess the requisite knowledge of the normal. Unless the man in practice keeps his special senses keyed to the task so that he may really be able to see, to feel and to hear, his physical examinations will not yield satisfaction.

From the foregoing brief presentation, it can be seen that there are many causes of faulty examination, all leading to insufficient and incorrect findings and, hence, to wrong conclusions. Most of these causes can be avoided.

Probably the most important one has not been mentioned, *viz.*, not enough time devoted to such examinations. This is a real problem for the busy clinician. Some diagnoses can be made in a brief period of time —a matter of minutes; others require prolonged and patient investigations, often repeated examinations which the practitioner does not have time to carry out. Furthermore, the economic side of the question must determine the amount of time and effort that can be expended on some of the difficult and interesting problems in diagnosis. One of the most difficult of the many problems facing the man in general practice is the efficient use of his time. He does not know one minute what are to be the demands of the next. He can not budget his time. He may, however, be able to systematize certain of his work and thus conserve time that may be turned to study and observation.

ERRORS IN JUDGMENT

It has been emphasized herein that the first step in arriving at an accurate diagnosis is to make a complete and correct examination of the patient. Such examination results in the accumulation of a varying number of facts, significant and otherwise. The diagnosis must be established through the application and correlation of the various data collected. This is the real test of the mental capacity of the clinician, his reasoning powers, his memory, his imagination, and in a measure reveals his personal tendencies, opinions, character and moral status. An analysis of the mental causes of mistaken diagnoses results in the following grouping: ignorance and laziness, obsession, emotional state.

a) *Ignorance and Laziness.*—These factors have been considered in another section and need not be referred to again except to say that insufficient knowledge of the details involved is not a safe foundation from which to render judgment.

b) *Obsession.*—Obsession is of frequent occurrence and is responsible for many mistakes in diagnosis. It is manifested in various ways. We sometimes start on a call with our diagnosis already decided upon from the story given us over the telephone and even though the symptoms noted on examination do not warrant such a diagnosis, we not only have difficulty in changing, but sometimes fail to do so. We blunder also during the course of some severe epizoötic. We reach the place in an attitude whereby we are looking for only one thing. Unless we approach a case with an open mind, we are very apt to err.

Anyone involved in any of the recent outbreaks of encephalomyelitis vividly recalls the diagnostic problems. In the beginning of the outbreak, before the presence of the disease in the community was established, errors in diagnosis were made because of ignorance. The disease was not recognized. After it was well established and the disease was receiving the entire attention of the veterinarian, mistakes were made in the opposite direction because of obsession. Keeping one's self-possession under the stress and strain of a situation of this character is extremely difficult, but unless done, unnecessary mistakes will be made. Naturally, many tentative diagnoses are required in such situations.

The serious obsession is that which becomes more or less fixed and is a constant

menace. Such a one is common in the midwestern country. I limit it to the midwestern country solely for lack of familiarity with other districts. I refer to that ever-present bugaboo, hemorrhagic septicemia. Someone has said that to make a diagnosis of hemorrhagic septicemia is to expose one's ignorance. This man has a lot of sympathizers, but I prefer to take the middle of the road, between the man who says it does not exist and the one who seems to think there is little else.

A diagnosis of hemorrhagic septicemia seems possible under a great variety of circumstances. While this diagnosis may at times be prompted by ulterior motives or may be used for the sake of convenience, I am convinced that most of the men making it so frequently are sincere. They seem to have a constant fear of this infection and are continually on the alert to see to it that no cases escape their notice. Obviously, such diagnoses are for the most part wrong. The frequency with which this diagnosis has been made has had its effect upon the livestock owner, and the unethical producer of biological products who sells direct is beginning to reap the harvest.

I have been surprised many times the past year or so at the glibness of many laymen in discussing this disease. They manifest their familiarity by calling it by its first name, "hemorrhagic," or the more experienced may go a step farther and call it "hem sep." A young man with one year of experience in practice told me this summer that the most discouraging thing he had encountered in his territory was the high percentage of farmers who had their own syringes and stocked hemorrhagic septicemia products.

Though not always conscious of it, we are influenced in our thinking by certain general attitudes. In some districts, poisonings, vegetable or chemical, are common. Practitioners in such territory are poison-conscious and their first reaction to sudden deaths or sudden illness in a herd, especially if a number of animals are involved, is that some poison is responsible.

In other districts, herd problems are largely due to acute infections and the practitioners of such districts are infection-conscious and their initial reaction to the same type of problem is that it is due to infection. These attitudes lead to error many times. We are in the infection-laden territory and the reaction to sweet clover poisoning when it appeared in this district is typical.

The first years this disease was seen in Iowa, the puzzled practitioner usually reported it to the state veterinarian. We made a number of investigations for him and in all but one herd the animals had been unsuccessfully treated with blackleg or hemorrhagic septicemia preventives before help had been requested. Sometimes both had been tried with a short interval between. In the one herd that was the exception it was tentatively diagnosed as anthrax, but a wise herdsman who suspected the real cause insisted on consultation before action.

No veterinarian could really examine an animal affected with sweet clover disease, either clinically or on postmortem study, and mistake the disease for one of these infections. The obsession blinds the clinician to the reality. The careless observation of one prominent symptom is usually responsible for the diagnosis made.

c) *Emotional State.*—There is another type of mistake in diagnosis that is serious and the reasoning back of it beyond my comprehension. I refer first to the incorrect diagnosis made in an animal suffering from a disease against which it has supposedly been previously immunized by the examining clinician. I use the adjective "incorrect" advisedly, since the diagnosis made is not the result of error, but is deliberate. In some instances the desire to deceive is the result of pride and vanity. In any case, such attempts at deception are due to fear: fear of loss of personal prestige or fear of loss of confidence of the client and his friends in the immunizing agent used. Whatever the explanation, the attempt at deception is inadvisable. One is apt to underestimate the intelligence and degree of learning of the client. If he doesn't know the truth, he is likely to get it from some other veter-

inarian. In either event the offender and his profession suffer.

Given the same set of circumstances, another type of veterinarian will render a mistaken diagnosis because of his blind faith in the infallibility of certain immunizing agents, a faith made possible through ignorance. The extent to which some people are influenced by such faith is almost unbelievable. The typical symptoms, the subsequent course of the disease or the autopsy findings can not shake them loose from their convictions.

Comment

I can not bring this paper to a close without mentioning specifically one other essential to good results in clinical diagnosis, *viz.*, a good clinical history. When I have made reference to a complete and correct clinical examination, it has been with the thought that the history was included in the process of examination. Obtaining an accurate history is not easy. It requires skill, tact and, obviously, an adequate knowledge of veterinary science. In the absence of an accurate history, symptoms lose their true meaning. Sometimes the diagnosis depends entirely upon the history and in no case can it be safely ignored. In the use of our diagnostic agents, tuberculin and mallein and laboratory tests such as the agglutination test for Bang's disease, we are apt to neglect a proper consideration of the history. Accuracy in diagnosis requires that these tests be considered as diagnostic aids, a part of a clinical examination, and that the herd history and individual histories be given careful consideration before final judgment is passed.

I have used my allotted time without bringing you anything new. My excuse for so doing is that I feel it is well for us to stop now and then and take inventory of just what equipment we have for doing our job and how efficiently we are using it. In the rapidly changing world of today, alarming inroads are being made by many agencies into the field of general veterinary practice. There are many reasons that this is so. We must assume some of the responsibility. We have left some ports rather poorly guarded.

Our argument against the lay use of drugs and biological products has always been that before remedies can be intelligently used, an accurate diagnosis must be made; that the veterinarian is the one qualified to render this service. Our argument has not been too convincing. We admittedly have lost ground.

I believe that one plank in our preparedness program for recouping our losses could well be devoted to better service through greater accuracy in diagnosis.

To this end, we should use every available avenue to increase our knowledge of veterinary science; we should so conduct our clinical examinations as to remove that element of error that results from faulty examination; we should approach each problem with a mind free from prejudice and fear and thus be able to render the best judgment of which we are capable. The resulting improvement should materially assist in convincing the livestock owners that we merit the place we claim as ours in the field of agricultural economics.

The Feeding of Unnecessary Animals

Commenting upon the questions which the incidence of war has naturally impinged upon the minds of managers of horse shows, President Adrian Van Sinderen of the American Horse Show Association says:

As the United States is not at war, as far as possible we should continue our daily lives as usual maintaining our leadership of the responsibilities which we have assumed.

The emergency will prove a test in many ways; among others there will be wear and tear on nerves. Good sport, good exercise, good fun, resulting all of them in good health, are necessary adjuncts to healthy nerves.

The association will heed the call of sport unless and until the call of country comes first.

The message goes on to say at length that it is patriotic and sound that horse shows should continue and that close collaboration between show and exhibitor should continue. Were there need for physical assistance for every man in defense of the country, were a blockade to shorten our ration, to such an extent as to make the feeding of unnecessary animals an unpatriotic act, there can be no doubt, Mr. Sinderen says, that horse shows should be abandoned.

The Chemotherapeutic Value of Sulfathiazole in Preventing and Treating Infectious Coryza (Hemophilus Gallinarum Infection) in Chickens*

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THE AUTHORS have used sulfanilamide and sulfapyridine for their chemotherapeutic effect upon *Hemophilus gallinarum* infection in chickens, but inasmuch as these materials were toxic when administered in amounts that indicated some protective but no curative value, the studies were discontinued.

Recently, sulfathiazole† was obtained for these studies and the preliminary trials were encouraging because it was observed that chickens tolerate comparatively large doses of this drug, such as 2-Gm. doses daily for adult birds, without showing any apparent toxic symptoms. It also was noted that birds treated in this manner prior to being inoculated with virulent cultures of *H. gallinarum* were protected against developing clinical symptoms of the disease. Likewise, birds showing severe clinical symptoms of infectious coryza showed marked improvement as indicated by cessation of nasal discharge and general improvement within 48 hours following the administration of 2-Gm. doses daily of the drug.

In one instance the blood collected from a bird which had received the drug over a three-day period proved to be highly bacteriostatic against the development of the organisms in cultures. Only one strain out of four showed growth. In this instance the growth was poor, and was an organism which had been under cultivation for over seven years in the laboratory.

After the drug dosing was discontinued, clinical symptoms would appear in the birds two and three days later, even after they had been dosed for a week. This indicated that all of the organisms were not destroyed, but were sufficiently retarded to prevent clinical symptoms.

The fact that birds develop clinical symptoms after the discontinuation of the drug does not indicate that it would not have practical value in the control of the disease, for the number of organisms used for inoculation purposes would be much greater than that occurring from contact exposure.

Further research might establish its practicabilities, and if the cost is not too excessive it might be utilitarian in controlling this disease.

Since the preliminary use of sulfathiazole has proved satisfactory, further studies were planned to determine:

1) whether the drug could be incorporated in the feed, what concentration would constitute the proper dosage, and what effect it might have on feed consumption;

2) the length of time such a feed mixture might be used before adverse reactions would be noticeable;

3) the effectiveness of such mixtures in preventing the development of clinical symptoms of the infection following inoculations of virulent cultures; and

4) the ability of the blood of birds fed various concentrations to support growth of the organisms.

Numerous other factors present themselves, but they must be studied further.

MATERIAL AND METHODS

Four groups of birds consisting of five mature cockerels each (Leghorn, Rhode Island Reds and White Rocks) were used. Groups I, II and III received varying amounts of sulfathiazole in the feed, *i.e.*, group I received 1 Gm. per 30 Gm. (1 oz.) of mash, while groups II and III received 0.5 and 0.25 Gm. per 30 Gm.

*Contribution No. 593 of the Rhode Island Agricultural Experiment Station.

†Furnished through the courtesy of Merck & Co., Inc., Rahway, N. J.

of feed, respectively. The control group (group IV) received only untreated mash. No supplementary feed was used.

The mixture was fed two days to the sulfathiazole groups prior to their being inoculated with a virulent culture of *H. gallinarum*.

DISCUSSION

None of the birds of the groups receiving sulfathiazole developed symptoms of infectious coryza during the time they received this drug in their feed. The birds seemed to eat their feed without showing dislike for the drug. Four birds out of the control group (those which did not receive sulfathiazole) developed severe symptoms of infectious coryza.

After a week, the feed for group I was reduced to 0.5 Gm. of sulfathiazole per 30 Gm. of feed in order to conserve the supply of the drug.

After the birds in group II had been on the feed for two weeks, untreated mash was substituted in order to determine whether the birds would develop clinical symptoms of coryza, as our preliminary experimental birds had contracted the disease after the dosing had been discontinued. The birds developed clinical symptoms of coryza, further indicating that sulfathiazole does not destroy all of the organisms, but restricts their growth sufficiently to prevent clinical symptoms.

The birds of the control group were each given 2 Gm. of sulfathiazole daily after they had shown severe infection for four days, in order to obtain additional information concerning the curative value of the drug. Individual dosing was found necessary; because the birds were so depressed, they failed to eat properly. At the end of the second day, they showed marked improvement as indicated by cessation of nasal exudation and a greater desire for feed. The dosing was continued at the rate of 0.5 Gm. per 30 Gm. of feed for three additional days and the treatment was then discontinued to note whether they would again show clinical symptoms. There were no signs of reinfection after a week of observation.

This would further indicate that the drug has considerable curative value. From these studies it would appear that 0.25-Gm. doses of sulfathiazole per 30 Gm. of feed is effective in preventing infection due to inoculation of virulent cultures. Whether the minimum effective amount incorporated in the feed can be less than this remains to be determined. No toxic symptoms were noted among the treated birds, suggesting that unless other objectionable factors are noted, the drug may have considerable merit.

The cultural tests indicate that the blood from birds receiving the various concentrations of sulfathiazole has a marked retarding action on the growth of cultures of *H. gallinarum*. It is interesting to note that our culture 44, which has been under cultivation for over seven years in the laboratory, was the least affected by the sulfathiazole bloods. It would appear that the cultural tests aid in determining the efficacy of the drug and, to some extent, explain its activity.

The results of the use of sulfathiazole in the manner described are of scientific interest because of the similarity of this organism to other members of the hemophilic group of organisms which are pathogenic for man and other animals. The practicability of this preparation for poultry must be investigated further. The data herein reported are of a preliminary nature, based on studies made under laboratory conditions and on a comparatively few birds, all of which were adults. Whether or not the same results can be expected with younger birds or laying birds remains to be determined.

SUMMARY

A limited number of experiments with sulfathiazole in concentrations of 1-, 0.5- and 0.25-Gm. quantities, respectively, per 30 Gm. of mash proved effective in the prevention of clinical symptoms of coryza following inoculations of virulent cultures. The material also seemed of considerable value in hastening the recovery of infected birds.

The studies indicate that it is effective only against laboratory infection during the time the drug is being administered, and thus that the organisms are not all de-

Controlling Ticks on Dogs*

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THERE ARE ONLY two species of ticks which are sufficiently numerous on dogs in New Jersey to warrant the use of special measures for the control of these parasites: the American dog tick, *Dermacentor variabilis*, and the brown dog tick, *Rhipicephalus sanguineus*. The American dog tick is the more important parasite, not only because of the frequency of its occurrence, but also because it may transmit spotted fever and occasionally tularemia to man.

AMERICAN DOG TICK

The American dog tick is a three-host tick. In common with those of all other ticks, the seed ticks possess three pairs of legs. At this stage the tick does not infest dogs, but attacks a variety of small native mammals of which the short-tailed meadow mouse, Microtus sp., is the most important. The larval ticks become fully engorged about three days after attachment to a suitable host; then they drop to the ground, seek a sheltered environment and under favorable conditions molt in about two weeks from the time of complete engorgement. The nymphal tick has four pairs of legs and is slightly larger than the larvae, or seed ticks. Like the larvae, the nymphs attach preferably to rodents. After engorgement, which takes five to ten days, is complete, the nymphal tick leaves its host and seeks a sheltered environment. Under favorable conditions and following a resting period of approximately three weeks, the nymphs molt and become adults.

The adult male and female American dog ticks are not attracted to rodent hosts which have nourished them during the immature stages; they seek the larger mammals, of which the dog is the preferred host; the adults will also attach to a number of other mammals including man and most domestic animals. Upon finding a suitable host, both male and female ticks attach immediately and undergo slight engorgement. The male tick, which never engorges greatly, then detaches and goes in search of the female. The female tick does not complete engorgement until after copulation has occurred; this takes place on the host. Following the sexual act, engorgement of the female may be completed in from five to seven days. After engorgement the females drop from the host, seek a sheltered place, produce from 3,000 to 6,000 eggs, and then die. The eggs hatch after an incubation period varying from two weeks to a month or more.

Because the immature stages of the American dog tick do not engorge upon domestic animals, this parasite occurs in the woods and fields. As the suitable hosts of the immature ticks are rodents, particularly field mice, the adult ticks are most numerous in the old, abandoned meadows which have grown up partially to brush. Any steps taken to reduce the number of mice in the vicinity, such as clearing away of underbrush and placing old meadows in cultivation, will serve to reduce the numbers of ticks. These steps are important, not only to reduce the nuisance of having numerous ticks about the premises, but also as a health safeguard. The immature stages of the American dog tick may become infected with the virus of spotted fever or the organism causing tularemia while feeding upon the rodent hosts, or the spotted fever virus may be passed from an infected female through the egg to succeeding generations. The danger of infection with both spotted fever and tularemia can be reduced materially by the control of the rodents which serve as hosts of the immature stages of the tick. A single tick infected with spotted fever is almost certain to transmit the disease to man if it is allowed to completely engorge upon this host. However, the virus of spotted fever is latent in the unfed tick and transmission of the disease is not possible until two to ten hours after attachment. There-

*From the Zoölogical Division, Bureau of Animal Industry, U. S. Department of Agriculture; summary of a talk given before The Veterinary Medical Association of New Jersey, Atlantic City, N. J., July 18-19, 1940. The author has drawn freely on U. S. Bureau of Entomology circulars E-292 and E-454 for much of the information presented in this article.

(*Continued from preceding page*)

stroyed following inoculation, but that they remain sufficiently retarded to prevent clinical symptoms.

The blood from birds receiving sulfathiazole has a marked retarding effect on the growth of *Hemophilus gallinarum* in culture.

fore, frequent examination of the body when traveling through an area infested with American dog ticks may prevent infection.

BROWN DOG TICK

The brown dog tick, like the American dog tick, is a three-host tick, the life history of both species being very similar. In the case of the brown dog tick, however, all three stages—larvae, nymphs and adults—attack the dog. Consequently the brown dog tick becomes concentrated about the sleeping places of the dog, where it may occur in great numbers. The brown dog tick is essentially a subtropical species and is able to survive the winters in exposed places only in warm regions such as the Gulf Coast States. However, we have received reports which suggest that as far north as New Jersey this tick may survive the winter in well-constructed kennels, especially if these kennels are heated. As many dogs are kept as household pets, this tick has been able to complete its life history within heated buildings, even in the coldest portions of the United States. For this reason the brown dog tick in some localities has become a serious pest in veterinary hospitals and in homes. Although this tick is not known to transmit any disease to man, it is able to annoy households by the number of individual ticks which occur near the dogs' sleeping quarters. The brown dog tick may transmit canine piroplasmosis to its normal host, the dog.

Satisfactory control of the brown dog tick depends upon complete eradication of the parasite from the premises. Since this tick generally detaches itself from the dog during the night, infested dogs should be confined to one place, as such confinement will tend to concentrate the ticks and aid greatly in their eradication. The sleeping quarters should be thoroughly sprayed with undiluted creosote oil. This oil is the same as that used to prevent decay of posts and timbers. However, as creosote oil is very caustic, it should be used with care; it also stains woodwork badly and for this reason it can not be used in houses. If houses are tick-infested, the most satisfactory agents for destroying the ticks are commercial fly sprays. These sprays, however, are not very effective for the destruction of the brown dog tick and care should be exercised to insure that the ticks are thoroughly wetted. Since the engorged brown dog tick has a tendency to climb upwards, frequently seeking out places under the rafters, spraying should include cracks near the roof of the building. These ticks in houses also tend to collect along the line where the walls meet the floor, and sprays should be applied liberally to these locations.

TREATMENT OF TICK-INFESTED ANIMALS

The treatment of animals infested with either the American dog tick or the brown dog tick is essentially the same. At the present time the most effective agent that can be recommended for use on dogs is a dip made from derris powder or cubé powder, as follows: water, 1 gal.; neutral soap, 1 oz.; derris or cubé powder (containing 3 per cent rotenone), 2 oz. The infested dog should be thoroughly bathed in this mixture, care being taken that none of the dip gets into the eyes. If ticks are relatively few, they may be removed from the dog by hand. However, if the American dog tick is the species involved, forceps should be used in removing the ticks, since they may be infected with either tularemia or spotted fever, in which case the infective agent may be present in the excretions of the tick. The infective agent of tularemia may penetrate directly through the uninjured skin, and if the tips of the fingers become contaminated with the virus of spotted fever, the owner or attendant may easily become inoculated by scratching himself. If forceps are not employed, the fingers should be thoroughly cleansed with alcohol or with soap and water following the removal of ticks from dogs.

RELATION OF DOG TICKS TO MAN

Apparently both the American dog tick and the brown dog tick are becoming more numerous in the eastern United States. This increase may be due in part to the greater number of dogs being kept, as well as to the extensive north-south tourist traffic whereby pet dogs acquire the brown dog tick in the southern states and are transported with their parasite burden to northern areas. It is also possible that the hosts of the immature stages of the American dog tick are becoming more numerous.

COMMENTS

The veterinarian should be sufficiently familiar with these two species of ticks to be able to recognize them. In recent years considerable publicity has been given to the American dog tick in order to acquaint the public with the dangers involved in too

intimate contacts with it. These risks to some extent have been greatly exaggerated in many lay minds, and it is certain that many people are desperately afraid of ticks. The veterinarian is in a position to explain to his clients the importance of ticks in the transmission of disease in a manner that will prevent undue concern, provided he is able to recognize the various species of ticks, and to explain the significance of each species.

The two species discussed here are easily distinguished by the following characters: The American dog tick has more or less pronounced gray markings on the shield and a quadrilateral capitulum; the brown dog tick is plain brown in color when unengorged, the shield is always brown, and a capitulum is hexagonal. The ability to recognize these two species of ticks is important, not only because it is important to distinguish the species which can transmit disease to man, but also because the measures that must be employed in the control of these parasites should be adapted to the life cycle of the tick involved.

The Problem of Encephalitis in Dogs*

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IN ITS BROADEST sense, the term encephalitis signifies simply a pathological condition of the brain. In dogs, encephalitis may be caused by infections, parasites and dietary deficiencies. These various causations have as yet been very incompletely explored. Certain abnormal conditions found in dogs in which the brain is involved are now beginning to be understood and are amenable to treatment and control. Other kinds of brain involvement in the dog are as yet little understood or barely recognized. It appears to be some of these that the veterinarian meets in his daily practice, and it may be that the information presented here may assist in clarifying these immediate problems.

One of the common forms of encephalitis in dogs is that caused by a distemper virus. It has now been decisively shown that the distemper virus, independent of any other condition, may produce specific destruction in the central nervous system. Recent recognition of the importance of inclusion bodies produced by the distemper virus has stimulated a number of investigations that have defined, to a considerable degree, the distribution of the virus during the distemper infection. The distemper virus grows typically in the epithelium making up the mucous membranes and is found in the surface cells of the respiratory tract, the gastrointestinal tract, biliary system, and the urogenital system. In such cells the inclusion bodies are commonly found. The most characteristic inclusion body is found in the cell cytoplasm and it closely resembles a Negri body. The cytoplasmic inclusions are shown in fig. 1. In addition, an intranuclear inclusion occurs, but this is variable both with the strain of the virus and the tissue cells involved. While the inclusion bodies of distemper are found in the respiratory epithelium early in the course of the disease, they do not occur in the bladder epithelium abundantly except in the more severe infections. A postmortem diagnosis of distemper may usually be made by a smear from the bladder epithelium taken at necropsy. The inclusion bodies will usually be found in abundance. From such studies and from actual isolations of the distemper virus it now begins to appear that a distemper virus is active in a sick dog until

*Read at the annual meeting of the Southern Veterinary Medical Association, Birmingham, Ala., Nov. 1940.

†Professor of Bacteriology, School of Medicine, University of Minnesota.

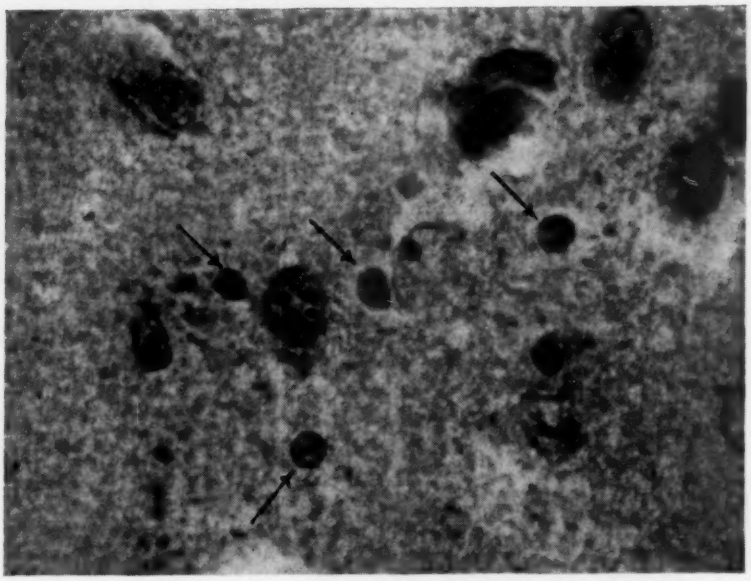

Fig. 1. Cytoplasmic inclusions of distemper in the brain of a dog dying with distemper.

death even though the picture may be mainly one of bacterial complications.

The distemper virus is also capable of growing in skin epithelium and in some types of cells making up the structure of internal organs. It also grows in cells of the central nervous system, particularly nerve cells. The degree to which the distemper virus grows in the different cell types varies, and the variation in types of cells damaged apparently gives rise to the different forms of distemper. In some dogs, a distemper virus may grow abundantly in the brain and to a much less degree in other parts of the body, and so give rise to an encephalitis which is in reality distemper. Little study has yet been made coördinating the symptoms and brain damage of distemper encephalitis. Our knowledge at this time does not seem to permit easy differentiation of distemper encephalitis from other forms of encephalitis, but brain sections of a dog dying with the distemper encephalitis virus show numerous distemper inclusions in the nerve cells of the brain. Figure 2 shows the intranuclear distemper inclusions in the nerve cell of a dog.

FOX ENCEPHALITIS IN DOGS

A second kind of infectious encephalitis which probably occurs in dogs is that produced by the fox encephalitis virus. Fox encephalitis is a common disease of red and silver foxes and occurs on fur farms enzoötically and sometimes in rather severe outbreaks. We have infected dogs with this virus and have shown that dogs are highly susceptible to it. The experimental disease in the dog is of short duration, usually less than a week. The general symptoms are very much like those of an acute type of distemper. Convulsions and a lethargic state are common in this infection. In the limited number of dogs which have been inoculated artificially, the symptoms of chorea so often seen associated with distemper have not been observed. The mortality in dogs experimentally inoculated with the fox encephalitis virus has been over 50 per cent. The pathology at necropsy has been very similar to that found in the fox. The endothelial cells making up the capillary network of the brain show numerous inclusion bodies within the nuclei. The liver damage from this disease in the dog is much greater than in the fox, and a larger number of hepatic cells shows the presence of intranuclear inclusions.

Differential Diagnosis. — The fox encephalitis virus infection may be differentiated from distemper by laboratory methods. Sections of the brain show the presence of inclusion bodies which are very

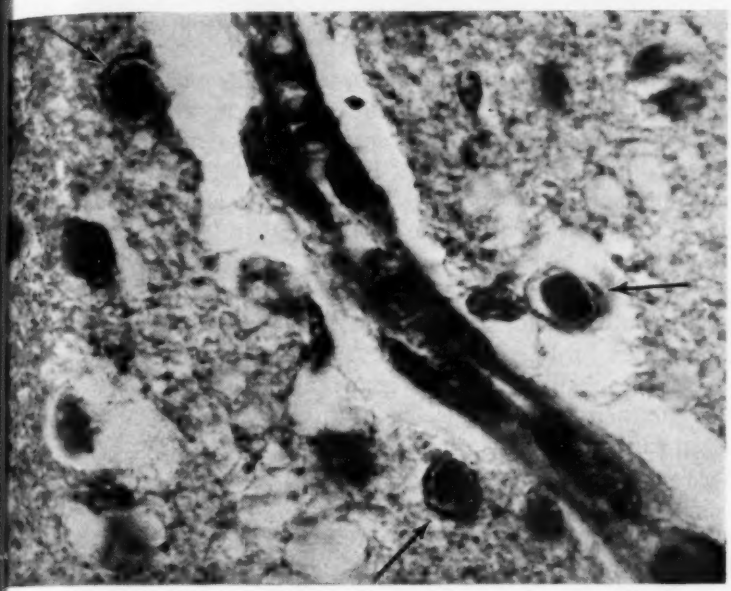

Fig. 2. Intranuclear inclusions of distemper in the brain of a dog killed, showing distemper symptoms.

dissimilar to those of the distemper virus. The fox encephalitis inclusions are found within the nucleus only. The inclusions are not found in nerve cells as in distemper but in the endothelial cells lining the capillary network of the brain. The inclusions of fox encephalitis in the brain of a dog are depicted in fig. 3. Ferrets appear to be entirely immune to the fox encephalitis virus. The fox encephalitis virus has been isolated on several occasions from dogs with a natural disease but there are as yet no clinical studies associated with laboratory identification of virus which would allow a distinct picture of the natural infection in dogs to be given at this time.

ANOTHER TYPE OF CANINE ENCEPHALITIS

There appears to be still a third type of infectious encephalitis in dogs caused by a filtrable virus. A number of investigators have described pathological lesions in the brains of dogs, notably round-cell perivascular infiltration and gliosis which

Fig. 3. Intranuclear inclusions of fox encephalitis in endothelial cells of brain. Section made from a dog experimentally infected.

would seem to be independent of an infection with a distemper virus. The importance of correlated study of symptomatology and pathology has been recognized by Beckman and Torrey.[1, 2] These investigators have described brain lesions in conjunction with a careful study of symptomatology, and they have transmitted an encephalitis infection to distemper-immunized dogs. Thus far in their investigations they have not found inclusion bodies associated with this disease, which would also seem to differentiate this condition from encephalitis produced by the distemper virus and from that produced by the fox encephalitis virus.

UNRECOGNIZED TYPES

There are probably other infections producing an encephalitis in dogs which are not yet recognized or fully appreciated. For example, a protozoan called "Toxoplasma" is known to cause an infection in which symptoms of encephalitis are of common occurrence. This disease has been described in a number of animals including dogs. Very little information on the occurrence of this disease in dogs is as yet available.

There is also an encephalitis involving the entire group of canines which has its basis in a vitamin deficiency. Fright disease has been described as a vitamin B_1 deficiency in dogs, and Chastek paralysis as a vitamin B_1 deficiency in foxes. Fright disease seems to occur from use of diets inadequate in vitamin B. In extensive outbreaks of Chastek paralysis occurring on fur farms following the feeding of fresh fish, some element in the entire fish appears specifically destructive for vitamin B_1, it having been determined that one pound of the whole carp will destroy in excess of 3,000 units of vitamin B_1. Both fright disease and Chastek paralysis have been established as noninfectious in nature and due to brain damage of physiological origin. There is some evidence that th lack of more than one vitamin may resu in symptoms of an encephalitis.

From all of this it is seen that the pro lem of central nervous system disturban in dogs is a large one but that definit progress is being made in separating on disease from another. With the proble still before us, definite evidence has ac cumulated that encephalitis in the do would seem to be caused (1) by three v ruses, at least; (2) by an infection wit a protozoan; and (3) by a vitamin de ficiency.

DISCUSSION

Dr. Scheibler.—What stain did you use?

Dr. Green.—Just the ordinary hematoxyli eosin stain will show these inclusion bodie They may also be stained with the speci stains used for the demonstration of Neg bodies.

Dr. Scheibler.—The reason I asked the que tion is this: Of course you know that othe and myself have had dogs with clinical sym toms of rabies, both dumb and furious, th die, and the laboratory finds it is not a case rabies. The question is what was it? showed every clinical symptom of rabies, y the technician sends back a negative repor Could that be your distemper?

Dr. Green.—It could be. From what exper ence I have had with distemper inclusion bodie I would not want to make a diagnosis of rabi unless I found Negri bodies or had ruled ou distemper by looking for distemper inclusion in regions other than the brain.

Dr. Anderes.—Dr. Green, we understand yo make a diagnosis from noting the inclusio bodies after death. Is it possible to demo strate from specimens of urine from infecte dogs?

Dr. Green.—I know that problem is bein worked upon right now. There is no doubt i my mind that within the next few years di temper will be diagnosed from nose smears o scrapings from the gums or the vagina or fro some tissue where the distemper inclusions ar located early in the course of the disease.

Dr. Ruble.—Is there any known treatment fo encephalitis?

Dr. Green.—In foxes a vaccination procedur is very successful. Each year the Fromm her of foxes are vaccinated with a live virus vac cine. This year 31,000 were inoculated. Th fox is, curiously enough, vaccinated against disease that is known to occur in dogs, yet isn recognized as a clinical entity in dogs.

[1]Beckman, C. H., and Torrey, J. P.: Canine encephalitis—Preliminary report. No. Amer. Vet. xxi (1940), pp. 232-233.

[2]Beckman, C. H., and Torrey, J. P.: Further studies on canine encephalitis. No. Amer. Vet. xxii (1941), pp. 39-46.

CLINICAL DATA

When the European peasant starts to feed new hay he mixes it with old hay to prevent digestive troubles.—*Haasjes.*

To prevent heavy worm-parasite infections in horses, the droppings are picked up immediately, day and night.—*Haasjes.*

The rationing of cows in England to save food seems to be a dubious measure. The secretary of a milk recording society reports that owing to reduced feed, the yield per cow fell 150 pounds last year.

It costs 14 per cent more to produce hogs on ground contaminated with worm eggs than hogs raised on clean ground—perhaps, the difference between profit and loss. —*"Veterinary" in Successful Farming.*

Within six minutes after iodine is injected into the blood stream the thyroid has taken it in and concentrated it ready for delivery, according to Leblond and Sue, French physiologists.—*Science News Letter.*

The impression that hybrid corn may be too hard for complete digestibility in cattle and hogs was found to be untrue by workers at the Ohio experiment station where a test against the open-pollinated variety was carried out. The average gain and cost were about the same.

The addition of liver, yeast and nicotinic acid prevents necrotic enteritis in swine, a disease which may exceed cholera in economic loss, according to workers at Michigan State College. The amount of nicotinic acid to give hogs as a preventive is not yet established.—*"Veterinary" in Successful Farming.*

Practitioners are reminded that July 1 is the deadline for re-registration under the federal narcotic act. While veterinarians as a rule are obedient in this respect, there are always a few who expose themselves to the penalties of neglect. The place to register is the office of the local collector of internal revenue.

Salt is the cure for cannibalism in chickens. If given in the feed, half a pound of common salt to each 100 pounds of mash is the dose recommended. If given in the drinking water, use a tablespoonful per gallon and give it as the sole water allowance for half a day. For the other half of the day the salted water is replaced with fresh water. Should the salted-water treatment not stop the habit, salt the mash also.

The salt treatment for cannibalism was preconized at the University of Wisconsin.

The use of sulfanilamide locally as an antiseptic is of value in wound treatment but experience has shown that repeated application retards healing to a considerable degree. It inhibits the growth of formative tissue as well as of bacteria, but the inhibition can be reduced by combining it with allantoin which tends to activate regeneration of connective cells. The maximum benefits to be derived from the topical use of sulfanilamide in pyogenic infections is obtained by one or two applications, pure, and then applying it in the form of a greaseless ointment containing sulfanilamide 10 per cent and allantoin 2 per cent mixed in glycerinated stearic acid base, *quantum sufficit.* In this fashion neither the regenerative process nor the sterilizing action of the sulfanilamide is materially interrupted.

Sodium Chlorate Poisoning in Cattle*

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THE USE of sodium chlorate as a means of killing certain weeds, such as quack grass (*Agrapyros repens*) and bindweed (*Convolvulus Arvensis*), has been widely recommended in recent years. In the bindweed area of the Midwest, several states have set up programs of weed control using $NaClO_3$ as the chief agent of treatment. It has generally been considered that sodium chlorate is entirely nonpoisonous as used in weed control and that it could be used with impunity in fields where livestock was grazing.

While few cases of sodium chlorate poisoning have ever been reported, conversations with veterinarians in bindweed areas would lead one to believe that the condition is fairly common. Reports of two cases in cattle and one in swine reached the author during the past year.

On November 7, 1940, a rather interesting case, on which we were able to collect rather complete details, was presented at the veterinary clinic of Kansas State College. This accident occurred on the farm of Oscar Longmiller at Soldier, Kansas in Jackson county. The owner has a 110-acre pasture on which 40 head of cattle, consisting of 25 yearling Hereford steers, 14 yearling and 2-year-old heifers and one 5-year-old cow of mixed Holstein-Friesian and Jersey breeding, were pasturing. In this field there was a patch of bindweed that covered an area of roughly one acre. Mr. Longmiller had agreed to coöperate with the county bindweed control program in cleaning up this area. An agent of the county treated this plot by applying 1,460 pounds of $NaClO_3$. The chemical was applied between nine o'clock a. m. and two o'clock p. m. on November 6, 1940. The owner was assured that the product was noninjurious to livestock and so the herd was left in the pasture. At 7 o'clock a. m. November 7th, the owner visited the pasture and found one 2-year-old heifer dead and 14 head down. Two yearling steers and one 2-year-old heifer died before noon that day. One 2-year-old heifer died at five o'clock p. m. on November 9th, and one yearling steer died November 10th. Of the 15 head showing symptoms of poisoning a total of 6 died. The other 9 head made a slow but complete recovery.

The symptoms were quite constant in all of the affected animals. Depression was pronounced. The animals could be made to arise only with difficulty and they staggered when forced to move. In the fatal cases, respiration was nearly imperceptible, and in mild cases it was accelerated. The visible mucous membranes and skin showed a bluish tint shading to chocolate brown. Drawn blood had a dark chocolate color. All of the animals salivated freely and showed a profuse diarrhea. In some cases, the feces were blood stained. Hematuria and hemoglobinuria were constant symptoms. Several cases, especially the pregnant heifers, showed terminal convulsions. Most of the animals showed some evidence of abdominal pain. Anorexia was complete in all cases. Those that recovered remained more or less off feed for several weeks.

Gross pathological findings on postmortem examination consisted of darkened tissues which tended to become lighter when exposed to the air. The blood was dark, thick and coagulated. The abomasum and fore part of the duodenum were eroded. No other lesions were found in the digestive tract, except a slight inflammation of the rumen. The spleen and liver were very dark but otherwise normal. There was some evidence of nephritis. The urine in the bladder was blood-stained and in one case contained clotted blood.

Pharmacology of Sodium Chlorate.—Sodium chlorate produces some local irrita-

*From the Department of Surgery and Medicine, Kansas State College.

tion to the intestinal tract, particularly to the gastric mucosa. Absorption is rapid. When chlorates are added to blood, either inside or outside of the body, they effect the formation of methemoglobin. The chlorate ion is not used up in this process but acts only as a catalyst so that it may convert an indefinite amount of hemoglobin. It differs in this respect from the nitrites. Its action is, therefore, more violent and more prolonged. Where absorption is prolonged or elimination impeded, chlorates produce an actual asphyxia with death occurring when approximately 75 per cent of the hemoglobin has been converted.

In addition to the formation of methemoglobin, the chlorates break up the blood corpuscles. This may produce embolism. The proteins which are liberated by the destruction of the corpuscles are irritant to the kidneys and produce interstitial nephritis with proteins, casts, and hemoglobin in the urine. Probably the chlorate ion itself irritates the kidneys.

Elimination of $NaClO_3$ is mainly by the kidney but to some extent by the saliva. Excretion begins promptly after administration and is completed within 48 hours. About 90 per cent of the chlorate can be recovered. Apparently little, if any, reduction from chlorate to chloride occurs in the body. Reduction, however, occurs quite rapidly after the urine is voided.

Fatal Dose.—Relatively little work has been done in determining the toxic dose of sodium chlorate for cattle. Fitch, Boyd, and Hewitt[1] produced severe toxic symptoms in two adult cows by the administration of a total of 180 and 400 Gm. respectively in divided doses. Frohner[2] gives 500 Gm. as the lethal dose for cattle. McCulloch and Murer[3] found the lethal dose for sheep to be between 90 and 120 Gm.

Since many factors, such as anemia, the presence of reducing types of bacteria, and the sodium chloride levels, are capable of modifying the effects of the drug it appears that there might be wide variations in the susceptibility of individuals to its toxic action. Clinical observations in the field and observations on human beings poisoned with potassium chlorate bear out this contention. Since experimental work reported to date involves only a very few individuals it can not be assumed that relatively large doses are necessary to produce toxic effects in all cases. This phase of the subject needs further investigation.

Diagnosis.—The diagnosis of sodium chlorate poisoning is not difficult when there is a history of access to a recently treated field together with the presence of cyanosis, darkened blood, hematin and hemoglobin in the urine. It is but necessary to eliminate the possibility of the animal having eaten poisonous weeds.

Treatment.—As yet there is no specific treatment for sodium chlorate poisoning. The animals should be removed from access to the drug and over-exertion avoided. Reducing agents such as sodium thiosulfate and methylene blue seem to have little, if any, value either *per os* or intravenously. Stimulants to combat depression and protectives are indicated. Copious blood transfusions are of value in borderline cases since the extra hemoglobin thus supplied may be the deciding factor.

Prevention.—Obviously, the best preventive measure is the removal of all stock from areas to be treated. If this can not be done it is important that certain precautions be taken to prevent the animals from consuming large amounts of the chemical. The herd should be salted heavily for at least a week previous to the application of the sodium chlorate. Most cases of poisoning have been associated with salt-hungry animals. The sodium chlorate should be dissolved and used as a spray and not in the dry form. If the latter method is employed unusual care must be taken to spread the chemical thinly enough to avoid any piles. Four pounds to the square rod should be the maximum amount used. Empty containers should be removed from the pasture. In one instance the residue in

[1]Fitch, C. P., Boyd, W. L., and Hewitt, E. A.: Toxicity of sodium chlorate for cattle. Cornell Veterinarian, xix (1929) p. 375.

[2]Frohner, E.: Lehrbuch der Toxikologie fur Tierarzte 5th Ed. (Enke, Stuttgart, 1919) p. 137.

[3]McCulloch, E. C., and Murer, H. K., J.A.V.M.A., xcv (Dec. 1939), pp. 675-682.

one of them caused several fatalities. The treated areas should be kept under observation for several days and if the stock show any fondness for grazing there, they should be removed from the pasture or the area fenced off.

On the Topical Use of Sulfanilamide

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MAMMARY TUMOR

An aged Pomeranian, male, had a malignant growth 2 in. in diameter at the level of the sheath orifice. After ablation the surgical wound was packed with sulfanilamide before suturing and dusted with it before covering with cotton and gauze. Inasmuch as this was not an easy place to bandage, the dressing was held in place with collodion and adhesive tape. In spite of licking, the adherence was excellent, holding on for six days. The dressing and the sutures were removed on the sixth day and the patient sent home. The wound was dry and healing without complication.

HEMATOMA OF THE EAR

This case was a smooth-haired Fox Terrier, male, with a hematoma of average dimensions on the inner face off the right concha. The usual incision was stitched down with through and through mattress sutures. Bandaging material spread over with sulfanilamide was placed on the inside of the ear so as to cover all of the sutures and held intact with strips of adhesive tape across the base of the ear. The outside was covered with gauze treated with the powder. The adhesive tape dressing across the head was similar to that used to set up trimmed ears. At the end of a week, when the dressing was soaked with ether and removed, healing was complete.

PERITONITIS

A panhysterectomy for pyometra was performed six days previously on a 6-year-old wire-haired Fox Terrier, female. The temperature was 105 to 105.6 F. and the animal was vomiting. An enlargement of the stump the size of an orange could be felt. The abdomen was reopened and the enlarged stump and the adjacent part of the uterus and probably some of the vagina were removed. Three drains of amber rubber, two of them extending through the abdomen from a stab above to the incision, were inserted and a strip of 1-in gauze drawn through them. Through these tubes the abdomen was irrigated with sulfanilamide (2 Gm. to 250 cc. of saline solution). This was done morning and evening for five days. The tubes were removed on the sixth day and the sutures on the seventh day. The temperature was normal on the third day. This was ten weeks ago and there are no signs of adhesions.

Sarcosporidiosis in a Black Duck*

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New Brunswick, N. J.

IN A RECENT review of the literature Erickson[1] has listed the species of birds in which Sarcocystis infection has been found. In this list he has included four new bird hosts. As the list now stands, it involves 8 orders, 13 families, 19 genera, and 20 species of birds.

Geographically, the list shows four European species, *viz.*, the mallard (Bulgaria), the domestic mallard (Germany), the domestic fowl (Germany, Hungary and Bulgaria), and the European blackbird. The one African species is a red-faced African mouse-bird, and a Ghiesbrecht's hawk is the only infected species listed from Central America (Panama). The six South American species are the Saracura woodrail and the Venezuelan grasshopper warbler from Brazil, the Guira cuckoo, English sparrow and shiny cowbird from Uruguay, and the olive-backed warbler from Argentina. The eleven North American species include the wild and domestic mallard, black duck, gadwall, American pin-

*Journal series paper of the New Jersey Agricultural Experiment Station, Rutgers University, Department of Poultry Husbandry.

[1]Erickson, A. B.: Sarcocystis in birds. The Auk, lvii (Oct. 1940), pp. 514-519.

tail, blue-winged teal, shoveller, turkey vulture, domestic fowl, Wilson's snipe, and the American redstart from the United States and the rose-breasted grosbeak from Canada.

Our case concerns a black duck received on November 18, 1940, from Mr. H. J. Burlington, of the New Jersey Fish and Game Commission. According to him, the bird was shot over a tide water marsh in Salem county and appeared normal. The abnormal condition of the muscles was discovered by accident when some skin was removed. The examination showed the bird to be in excellent flesh, notwithstanding the fact that all skeletal muscles were thoroughly infiltrated with the cysts.

This report, although adding no new species, records the disease in New Jersey for the first time. However, it is believed that the disease was also found in a catbird received on July 30, 1937, from Mr. B. S. Bowdish of the New Jersey Audubon Society. This bird was found along the roadside and died during the night. The autopsy revealed no injury as suspected by the sender. On the contrary, the pectoral muscles showed what appeared to be Sarcocystis infection. The muscles were submitted to another laboratory for diagnosis, but as yet none has been received. This bird also showed a Plasmodium infection which was more likely the cause of death.

The first reported infection in the black duck seems to be that of Mathews[2] of Indiana in 1930, who diagnosed the disease in a single specimen. The next report is that of Gower[3] of Michigan, who found seven infected ducks of which six were identified as black ducks (*Anas rubripes*). However, a case encountered earlier than the above concerns a black duck (*Anas obscura rubripes* Brewster) shot on the Potomac by Alonzo Jones on October 16, 1929, and sent to H. R. Baker[4] of Dover, Del. The muscles of the breast, neck and tail were extensively involved, yet the bird appeared to be normal and was in good flesh.

Sarcosporidiosis in birds is probably very widespread, but escapes notice because affected birds may appear normal and because infection is not discovered unless the muscles are exposed.

[2]Mathews, F. P.: Sarcosporidiosis in a duck. J.A.V.M.A., lxxvi (May 1930), pp. 705-707.

[3]Gower, C.: A new host and locality record for *Sarcocystis rileyi* (Stiles, 1893). J. Parasitol., xxiv (Aug. 1938), p. 378.

[4]Baker, H. R.: Personal communication.

Pig Anemia

I do not have much swine practice, having never seen a case of erysipelas and but two outbreaks of cholera in 20 years. This spring, however, I have had my troubles with pigs and have lost many of them. Several sows had litters showing typical anemia, as shown by the use of the Tallquist-Adams hemoglobin scale. The treatment was the old oil-can method of giving iron sulfate. However, in some litters we lost on an average of a pig a week, apparently from pneumonia, even after having been on pasture for 10 days. The pneumonia was confirmed *post mortem*. Litters which we tested for anemia later, still showed anemia. May I ask if there is any relationship between pneumonia and anemia, and how long should the iron treatment be carried out?—*Chas H. Haasjes, Shelby, Mich.*

Comment by John B. Bryant.—Pigs affected with anemia have a low resistance to disease, hence are vulnerable to any exposure. Pigs apparently thrifty under favorable conditions "break" under adverse conditions. McBryde contends that anemia is one of the causes of serum shock. The presumption is that before the pigs were turned out they were exposed to bacteria-laden dust (streptococci, staphylococci, colon bacilli, suipestifer). The latter find a fertile field in the lungs of anemic pigs.

The pasture may provide the sanitation required. Clean, fresh water is important, as pigs contaminate the water from which they drink. In addition to the specific treatment for anemia, pulmonary swine bacterin may be used. Our specific treatment for anemia is 1 lb. of iron sulfate and 0.5 oz. of copper sulfate thoroughly mixed

with 20 to 30 lb. of clean soil. Pigs eat it readily.

In regard to the length of time to continue anemia treatment: That depends upon the developments. If pigs do not have contact with soil, the treatment should be continued until they do. Wise hog raisers provide their early pigs with sods—sods cut from roadsides of ground over which hogs have not ranged. The sods are renewed several times a week.

Paratyphoid in a Fawn*

H. C. GAUGER, M.S., and
SETH GORDON, JR., B.A., M.F.
Raleigh, N. Car.

A TWIN fawn from one of the state game farms was submitted by the junior author to the senior author for autopsy and bacteriologic examination on July 23, 1940. A pen-raised doe, bred by a buck from Tennessee, dropped the twins during the last week of May 1940; the births were apparently normal.

On July 5, 1940, the mother became sick. She staggered, fell, had convulsive movements, and suddenly died. This animal was submitted to a state laboratory for autopsy. Death was attributed to poisoning or an infectious disease. A bacteriologic examination was not made. Following the mother's death the fawns were fed chiefly with unpasteurized cow's milk, although some diluted condensed milk was given occasionally.

On July 10, 1940, one fawn showed weakness, listlessness, inappetence, inflammation of the anus and marked scouring; these symptoms persisted until it died on July 21, 1940. Soon after death the fawn was packed in ice and submitted to this department for autopsy.

Incidentally, the twin to the above-mentioned fawn seemed to thrive until November 23, 1940, when it died. During the absence of the junior author the animal was buried, and it was not exhumed for autopsy until four days later. Although decomposition made the autopsy difficult, the following observations were made: liver, very firm and apparently cirrhotic; intestinal mucosa, necrotic; lungs, serous. Cultures were not made.

In the fawn that died July 21, 1940, the findings were as follows: liver, very firm and apparently cirrhotic; intestines, necrotic enteritis; lungs, pneumonic. Loop cultures from heart blood, liver and spleen streaked to Endo's medium and incubated for 24 hours at 37.5 C. yielded a pure culture of lactose-negative bacterial colonies. On further study, the organism was found to be motile; it blackened lead-acetate agar and formed acid in Jordan's tartrate media. Indol was not formed. In Dunham fermentation tubes containing 1 per cent of fermentable substance, acid and gas were produced in dextrose, rhamnose, trehalose, mannitol, xylose, arabinose, maltose and inositol. Lactose, raffinose and sucrose were not fermented. Serologically, the organism was identified as *Salmonella derby.**

As far as can be determined, this is the first report of *S. derby* infection in deer.

*From the North Carolina Agricultural Experiment Station and the North Carolina Department of Conservation and Development, Division of Game and Inland Fisheries.

Ivy Poisoning—Tannic Acid Treatment

Although poisoning from the ivy plant, *Rhus toxicodentrol* and other species, does not occur in animals, it is nevertheless an occupational disease of the veterinarian or of anyone who plays or labors where this genus of plants flourishes. It spoils the pleasure and cuts short the duration of many a vacation. Rhus spp. is, therefore, a shrub to keep in mind at this time of the year.

Ivy poisoning is a frightful disease. It strikes the victim, four or five days after exposure, with a violent vesication and intense pruritus at the site of contact that last for a long while. The lesions, aggravated by scratching, often assume the character of veritable second-degree burns. The poison is a sticky, oily resin that

*Identified by P. R. Edwards, Department of Animal Pathology, University of Kentucky, Lexington, Ky.

exudes when the plant is injured, and while it does not spread from the site of inoculation, a considerable area of the hand or arm or leg may be affected. It may be conveyed by clothing or the hand from one person to another, simulating the contagiosity of a virus.

The method of immunization announced some years ago (in the 1920s) has not

—After Schwartz and Warren, 1941.

Blebs treated with tannic acid solution after their tops had been removed with scissors.

stood the test of critical, controlled experiments, nor the test of time. Chewing and swallowing the leaves was said to produce an immunity to the local action of the plant's poisonous principle, but this was proved to be erroneous and not always harmless. The wearing of gloves and the use of protective ointments are the only preventives.

TREATMENT

The United States Public Health Service has recently announced* that a 10 per cent aqueous solution of tannic acid should supersede the old line of astringents formerly regarded as the best local treatment (lead acetate, zinc sulfate, aluminum acetate, boric acid). To obtain good results the epidermic covering of the vesicles is removed with scissors or wiped off with alcohol-saturated gauze before applying the tannic acid solution. Two applications a day are sufficient. Phenol, 1 to 3 per cent, may be added to the solution if the pruritus is violent. Phenol, however, is to be used with caution, for when applied to raw surfaces of considerable size, its toxicity must be taken into account.

Contrary to the stubborn course of ivy poisoning under the old treatments, tannic acid stops the itching in one to two days, and in one week all of the patients thus treated had recovered.

*Public Health Reports, lvi (May 15, 1941), pp. 1039-1041.

Insect Transmits Fowl Paralysis

Brown and Cross, Texas College of Art and Industries, announce that an insect is a probable transmitter of range (fowl) paralysis, problem disease of avian medicine. A flock of chickens enclosed in a pen adjacent to an old barn was found to be infested with "blue bugs" or "fowl ticks" (= *Argas persicus* Oken) and died in large numbers. Suspecting the insect to be the cause, experiments were carried out to determine the facts. Parasitized chickens were placed in pens with well birds. In 21 days the well birds began to come down with paralysis. Control birds kept in disinfected pens did not contract the disease after 31 days. The experiment was repeated five times during the year. In the pens infested with "blue bugs" 111 out of 120 developed paralysis.

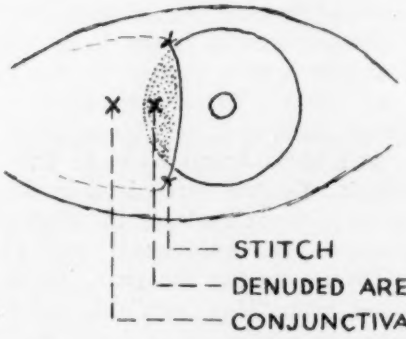
"Blue bugs" removed from a paralyzed hen were treated with ethyl alcohol, placed in a normal saline solution and ground until a suspension was made of their bodies. Young birds injected with this suspension came down with paralysis in from 21 to 29 days. A 2-year-old hen and a pullet were injected with the same suspension 34 days after it had been made. In 28 days the hen was paralyzed in one leg, and the pullet was prostrate.

The authors' conclusion was that *A. persicus* transmits fowl paralysis and that other insects also may be responsible. [*Brown, J. C. and Cross, J. C. A probable agent for the transmission of fowl paralysis. Science, xciii (May 30, 1941), p. 528.*]

Dermoids of the Eye in Dogs*

CLAUDE S. PERRY, M.D., F.A.C.S.
Columbus, Ohio

DERMOIDS are not uncommon in dogs and with proper care can be easily removed. These benign tumor growths arise as a congenital malformation during fetal life. They are of various sizes and appear as a pigmented patch of skin on the eyeball from which a tuft of hair protrudes. Such tumors are usually found at the limbus, in the external canthal area and encroach both upon the cornea and the bulbar conjunctiva. Rarely they may be entirely corneal or conjunctival.



Placement of sutures for the conjunctival flap.

Early in the puppy's life these tumors may be small and go unnoticed until a conjunctivitis develops, but they may grow so large as to cover the entire cornea.

Histologically the growths are covered by keratinized stratiform epithelium with the usual characteristics of true epidermis. There are papillae under which lies a dense corium layer of fibrous and elastic tissue containing smooth muscle, blood vessels, nerves, adipose tissue and occasionally even cartilage. Hairs usually are found protruding from the tumor; these are accompanied by serous and sebaceous glands.

The symptoms are produced by the bristle-like action of the protruding hairs in the tumor which eventually traumatizes the conjunctiva. Infection added to the traumatization produces a conjunctivitis with the usual symptoms of irritation and sticking together of the lashes. Any conjunctivitis present should be reduced to a minimum prior to surgery.

Early surgical removal of the dermoid is advised before it grows larger. Occasionally the part of the tumor overlying the sclera may not be limited to the conjunctiva but may also involve the sclera. In the latter case, splitting the tumor from the sclera becomes more difficult as fenestration of this structure must be avoided.

SURGICAL PROCEDURE

The animal is anesthetized by injecting intravenously 1 gr. (1 cc.) of sodium nembutal per 5 lb. of body weight. The surgical field is cleansed with ivory soap and water. Argyrol 20 per cent is instilled in the eye. Then the eye is irrigated with sterile water until no brown stain remains. This procedure is repeated. The lid sutures are placed the same as for a cataract operation, intramarginal, and not through the conjunctiva or skin.

The tumor is grasped near its corneal margin with eye forceps held in the left hand and slight upward traction exerted. A keratome is held in the right hand with the blade placed flat against the surface of the cornea. The dissection is started at the corneal margin, cutting or peeling the

*Research conducted at the College of Veterinary Medicine, The Ohio State University.

A dermoid tumor of the right eye.

Same animal six months after surgery. Note the clear cornea.

tumor from the cornea to the limbus. From this point one continues by undermining the conjunctiva, using the blunt points of closed scissors (Steven's). More rarely the tumor may involve the sclera and thereby require the splitting of this structure.

It has been our experience that these dermoids are firmly attached to the cornea at the margin, but very loosely elsewhere, and are easily removed. The tumor is cut free from the conjunctiva, preserving as much of the latter as possible. The conjunctiva is then further loosened or undermined by blunt dissection. The abraded corneal surface is covered by pulling the loosened conjunctiva over it and securing it in place with two interrupted black silk sutures. (See diagram.) It is advisable not to stretch the conjunctiva too much as to do so will cause the sutures to pull out or cut through. If the tumor is not too large and the conjunctiva has been sufficiently undermined, this should be accomplished without difficulty. The sutures may have to be removed, but usually they slough out by about the fourth day. Covering the abraded area with the conjunctiva promotes healing because of the increased lymph and blood supply provided by the conjunctiva, the cornea normally being avascular. Bichloride of mercury eye ointment 1:3,000 is instilled under the lids, the lid sutures are tied and the eye bandaged.

It is advisable to leave the lid sutures in place for a week unless they pull out earlier. The bandage may be removed two or three days later. The after care consists of keeping the eye clean and the daily instillation of bichloride of mercury eye ointment. The sutures in the conjunctival flap will usually slough out and permit the conjunctiva to fall back into its normal place without further attention. If necessary these sutures may be removed at the end of a week.

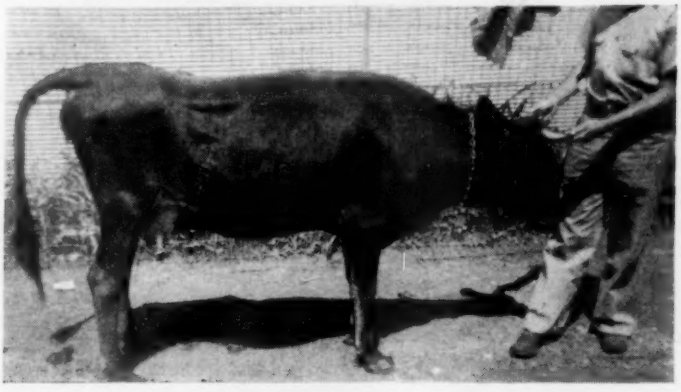
The operation as outlined may be expected to give a good result.

Maternal Dystocia—Cesarean Section—Recovery

The subject was a grade Jersey heifer suffering from a maternal dystocia due to deformation of the pelvis caused by an accident during calfhood. When brought to our hospital the heifer had been straining for about 24 hours. We were unable to bring the fetus through the deformed pelvis. She was in fair condition notwithstanding our manipulations.

The owner wanted her destroyed, to avoid the expense of an operation but inasmuch as we had faith in our ability to save the cow, we consented to do the operation without any charge if the heifer died and to accept one half of her value if she recovered. Having agreed upon this arrangement the operation was performed in the following manner:

The patient was secured right side up, the site clipped, shaved, disinfected and anesthetized by infiltration. After the incision had been made, one operator reached



MATERNAL DYSTOCIA
Snapshot by the author, taken 24 hours after operating.

in and drew out one right horn which contained the hind legs of the fetus. The other operator incised the horn along its long axis and drew out the fetus and later the afterbirth which was easily detached. The hysterotomy was closed with linen sutures. The inner (mucous) layer and the outer (serous) layer were closed separately. The laparotomy was closed with one set of through and through linen sutures.

The snapshot [reproduced on p. 58] was taken on the next day. On the fourth day the owner called for the heifer and took her home, paying us half of her value which was a reasonable fee for the service. Dr. J. T. Alston was the operating surgeon. —*Clayton Stephens, D.V.M., Tupelo, Miss.*

Bovine Restraint: A Simple Method of Passing the Stomach Tube

EMERY H. ENGE, D.V.M.
Comfrey, Minn.

A ROPE 8 to 10 ft. long and ⅜ in. in diameter with a harness ring attached to one end is needed. The rope is placed around the head, one end is put through the mouth, doubled and drawn through the ring (fig. 1). The loop is placed over the upper jaw and the rope drawn tight to the side of the stanchion, thus restraining the animal (fig. 2). The tube is then passed between the ropes and the median line of the palate to the esophagus. The tube lies between the molars and near the center line of the mouth, thereby protecting the tube from being damaged. Occasionally a cow will try to nick the tube with the incisors. This may be overcome by drawing the tube to the side of the incisors. To guard further against this, I use a pipe 12 to 18 in. long with a lumen large enough to accommodate the tube. The tube is placed between the ropes and upper jaw and run through the pipe.

It will be noted in figure 3 that the pressure of the rope against the tube holds

Fig. 1. The rope is placed around the head; one end is put through the mouth, doubled and drawn through the ring.

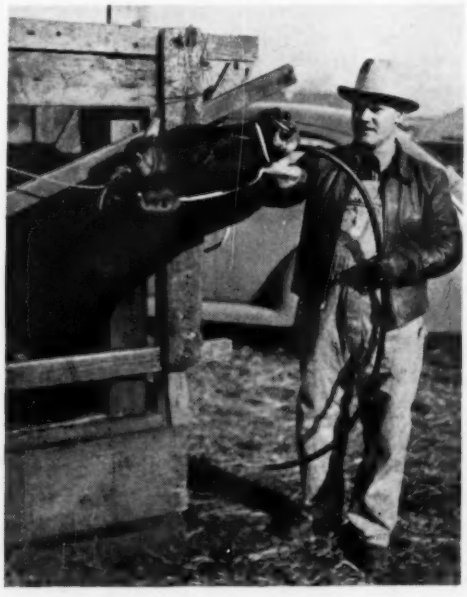


Fig. 2. The loop is placed over the upper jaw and the rope drawn tight to the side of the stanchion.

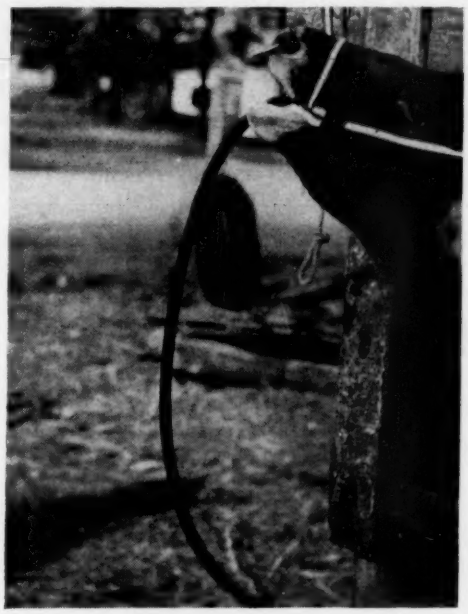


Fig. 3. The pressure of the rope against the tube holds the latter in place, and it remains in place equally as well with the pipe over the tube.

the tube in place, and it remains in place equally as well with the pipe over the tube. At times I have had to treat an animal without assistance. By means of the tube remaining in position I can connect it to the pump and proceed. The wildest of steers can be handled in this manner. This method is also effective where it is necessary to pass the tube in a steer or bull suffering with acute tympany or other conditions which may cause the animal to become uncontrollable.

The pictures taken with the rack illustrate the way an animal may be restrained in a stanchion. In passing the tube to feed cattle where stanchions are not available, I use a lariat around the neck, drawn to a post alongside a wall or manger if convenient, then use the rope as illustrated.

The animal is released by removing the tube and pipe, withdrawing the loop from the upper jaw and pulling on the long end of the rope.

Since starting in practice, I have been working to simplify the passing of the stomach tube in cattle and I hope that this technic I have developed may be of use to my fellow practitioners.

Torsion of the Uterus in a Ewe: Cesarean Section*

JAMES FARQUHARSON, D.V.M.
Fort Collins, Colo.

THE SUBJECT was a Hampshire ewe, 3 years old.

HISTORY

This animal was one of a hundred Hampshire ewes that had been pasture bred; therefore, the date of lambing could not be ascertained. The ewe was in good condition and was pastured during the day and corralled at night.

On the morning of March 15, 1941, this animal did not follow the rest of the flock to the field. She was uneasy as evidenced by kicking at the abdomen occasionally and turning of the head to the flank. Most of the day she lay in a lateral recumbent position and occasionally strained. In the late afternoon she was listless and grinding the teeth. On being induced to stand, she would show pain by pawing the ground and assuming a crampy position with the hind legs. The temperature was 103 F., respiration accelerated, and the visible mucous membranes slightly injected. The mammae were distended and lactating. The vulva did not impart the usual signs of approaching normal parturition. Manual and visual examination of the vagina revealed an acute twist in the anterior portion with the cervix hidden and directed downward. The vaginal wall was covered with a scanty mucoserous secretion.

DIAGNOSIS

The condition was diagnosed as torsion of the uterus.

TREATMENT

Laparotomy was decided upon. The wool on the right flank was clipped and the area shaved. Chloral hydrate was administered intravenously until reflexes were abolished. The line of incision was infiltrated with a 1 per cent solution of pro-

*From the surgical clinic, Division of Veterinary Medicine, Colorado State College.

Ewe, six days after the operation, nursing her cesarean-delivered lamb, in excellent state of convalescence with the surgical wound showing no abnormal reaction.

caine. An abnormal amount of peritoneal fluid was present, in which there were numerous coagula of fibrin. A complete 360° torsion was found. The torsion was to the right and the pregnancy was a left cornual.

Following correction of the torsion, cesarean section was deemed the proper procedure; first, because the lamb was large and the body of the uterus was considerably traumatized and devitalized, and second, because of the lack of preparation and relaxation of the external genital organs. After delivery of the lamb, involution of the uterus occurred with expulsion of the placenta while the abdominal wall was being sutured. The wounds of the uterus and the abdominal wall were showered with powdered sulfapyridine. The wound healed by primary union and recovery was uneventful.

COMMENT

This case is interesting from several clinical points of view: First, torsion of the uterus of the ewe exists as an entity. Although common in the cow, the condition has not been reported in the ewe. From an anatomico-physiological basis the incidence of torsion of the uterus in the ewe should be as prevalent as in the cow. The dearth of literature on the subject is possibly due to the economic factor. Many ewes are allowed to die in dystocia because professional aid was not employed. Secondly, it is generally believed that the sheep is a poor surgical risk. This is not true. The sheep withstands major surgical procedures as well as other species providing the operation is performed properly. Cesarean section is undoubtedly not practical in the average ewe because of the low value of the individual animal. However, a number of successful hysterotomies have been performed in the ewe, more for the scientific interest than from a practical standpoint. In valuable animals, such an operation may be performed with no undue alarm as to the outcome.

Almost one out of ten deaths among physicians is due to cancer.—*J.A.M.A.*

EDITORIAL

The Ration of the German Soldier

BECAUSE one of the functions of the veterinary service of the United States is the supervision of human food of animal origin and of the health of the animals from which it is derived, the current dispatches about the ration of the German soldier are worth a line or two in the veterinarian's notebook.

Current events, studied from the standpoint of military performance, appear to specify that the forays of the German army are marvelous displays of human endurance, of well-fed men. When soldiers can march 25 to 30 miles in 24 hours and arrive fit and ready, they were not underfed at the start nor hungry at the finish. These marches not only gainsay the dispatches about the hungry German of the Third Reich, but actually prove that the ration of the German soldier is based upon the science of nutrition, which has made the old army ration as archaic as the powder horn. Mixtures and substitutes (ersatz) processed for food value (and convenience), which have been held out as horrible examples of privation, are in fact the achievements of biochemistry that the modern quartermaster is not now overlooking. The revelations on sustenance of the past 20 years are taken into account.

Whether the ration of the German soldier briefly touched upon below would tempt the palate of the American may be questioned. But that it increases endurance and maintains health has been proved on the battlefields of Europe and Africa. In effect, the ration is built around the conservation of meat—upon making meat "go further."

The meat of the German quartermaster is roasted or cooked and frozen after being packed in boxes convenient in shape and dimensions for storage, transportation and final issue. The package, somewhat larger but shaped like a shoebox, is space-saving and the contents in that state may be kept for years. Compared with the frozen fresh meat of the refrigerator car, the space saved is more than 400 per cent.

Pemmikin is another form of meat issued to the German soldier. The name is familiar to Americans. It signifies the dried meat of the North American Indian. *Pemmikin* is issued to detachments separated from the main force for a long while. The American pioneers on their westward trek understood its nutritive value and, more particularly, its convenience where and when fresh meat could not be procured. Dried venison, bear, elk and moose saved the life of many an adventurous pilgrim of early American history.

Vegetables (cabbage, sauerkraut, spinach, *et al*) are dehydrated and compressed into cubes, and some are subjected to the quick-freezing methods of American origin. This part of the ration includes vegetable powder and juices which are used in various ways in preparing meals. Tomato powder and apple powder, for example, make tasty puree and applesauce.

Edelsoja, an ersatz for meat, eggs and milk, is made from soybean flour. It is added to soups and bakery goods (bread, pastry, macaroni). Artificially germinated soy bean and rye are added to sausage and other meat products to increase their nutritive properties and to make them go further.

Cheese is issued in the form of a dry powder. When mixed with cold water, it takes on the texture of ordinary cheese, ready to slice and serve.

Bratlings, also, is an ersatz for meat. It is a powder of cereal grains, soy beans, casein, whey, animal albumen and a seasoning of spicy herbs. Bratlings is cheap and

nourishing and it satisfies the taste and the appetite. Soldiers relish it, our informant declares.

Vitamin C is worked into candies with sugars, fats and whey. The object is to encourage the consumption of this scurvy-preventing factor. Thus, an age-old scourge of the sailor and soldier is wittingly prevented.

Throughout, the ration of the German soldier, in so far as details are available to us, is a scientific contribution of the research laboratory to modern warfare. In war, bulk and spoilage are as serious as good nourishment is a necessity.

Incomplete as this brief is admitted to be, the facts related seem sufficient to underline that ingenious subsistence as well as ordnance may determine the fate of the nations caught in the present upheaval.

Proposes the Amalgamation of the British Veterinary Journals

A Dublin correspondent to *The Veterinary Record* pleads for "a comprehensive veterinary journal" to replace *The Journal of Comparative Pathology and Therapeutics* which was lost to the readers of the English language last year through the death of Sir John M'Fadyean. The plea is for a journal that "would give some index of our high standing in science. . . ." The impulse is comparable to that which prompted the AVMA to establish the American Journal of Veterinary Research. But what the correspondent *(loc. cit)* does not seem to realize is that the journal of a national society has other things to do besides filling white space to solicit a "high standing in science." It has a profession to keep in order for the public good. Its editors and its inner council regard "high standing in science" as but one of many means of accomplishing its purposes. The periodical of a veterinary society should not be expected to print the details of science for vanity's sake only, and thereby bore a large percentage of its readers with material they can neither understand nor ever use. There are proper media for gazetting the minute details of scientific research, and these media are not necessarily the journals of the professional associations. In the councils of the latter, public welfare through guidance of a membership is the objective. In the higher brackets of science, nothing matters but science itself. The one is concerned with science, the other with its proper application in the interest of the general population. So the two fight a verbal duel to no good purpose.

The situation was well exemplified in the United States. With the ever increasing growth of the AVMA, the membership engaged in clinical work clamored for a "more practical" journal. The scientific articles displeased the majority. On the other hand, those in the field of research, waiting in vain for the publication of their manuscripts, were also displeased. Neither could be appeased until journals for each field were established. Our "research journal" fills the place in the United States and Canada that Sir John's periodical filled in Britain. It is, therefore, understandable why the editor of *The Veterinary Record* (official organ of the NVMA) objects to the implication that that 53-year-old journal should be superseded by "a comprehensive veterinary journal" to satisfy the upper echelon.

The Veterinary Record holds together the veterinary profession of the British Empire by telling weekly the story of veterinary science, veterinary practice and of the veterinary profession and as the editor declares, its pages are open for the portrayal of high standards. So, it does not want to be merged with other journals for mere vanity's sake. To that we agree for wherever English is read "The Record" has been welcome. It has "utilitarian" written on every page. While we, too, miss *The Journal of Comparative Pathology and Therapeutics* we feel that time will somehow replace it without having to change the name, style, aim or status of Britain's well-known weekly.

WITH THE EDITORS

Legislating Horses Off the Street

It seems that local law makers in every city of considerable size in the country have at one time or other in the last 25 or 30 years attempted to legislate horses off the streets. So, the recent attack on the use of horse-drawn milk wagons in Denver is not new. The horse's nemesis in this case is George E. Crammer, manager of parks and improvements for that city, who argues that horsepower is "old fashioned and very undesirable." The dairy companies have other views, however, as told in the following retort supplied the JOURNAL by Dr. A. A. Goodman of Monte Vista, Colo.:

Dairy company officials say that on a milk route the horse is a natural born genius. Inside that long, patient skull of his he carries a map photographically accurate.

With the aid of a good horse, any green kid who knows cream from buttermilk can hop the wagon and do a perfect delivery job—providing, of course, he can read hieroglyphics which Mrs. Denver Housewife scrawls on the milk card.

Dobbin knows the route. Automatically, he turns up the right alley, stops at the right gate, moves on without prompting stops, starts hundreds of times—with never an error.

If the Smiths go to the mountains for the summer and leave a stop note in the milk hole, Dobbin stops at their gate the following morning.

"Giddap," says the driver, and Dobbin moves on.

Next morning, or at best the morning after, the horse passes up the Smiths automatically. And if a new customer is added, the horse knows his address within three days. Despite the modern widespread adoption of the five-day week, Dobbin is still on a seven-day schedule. He's a life-saver on the regular driver's day off.

"And don't think that horsedrawn milk wagons mark Denver as a one-horse burg," one dairy official said Saturday. "New York still has 'em. So does Chicago, Lincoln, Neb., and scores of other cities. Oklahoma City had horsedrawn milk delivery almost exclusively. For business as well as sentimental reasons we're keeping our horses."

The horse is conceded to be a pastmaster in the fine art of delivering milk. But when the price of milk can be reduced by replacing horses with motors, the horse-drawn milk wagon will go into the limbo as completely as the stagecoach. Sentiment has little to do with settling such matters. The economic value of horse brains, not fine sentiments, is the factor that keeps horses on milk wagons. Milk companies, supervised and criticized as they are at every turn, would gladly change from horse to motor, but for their narrow margin of profit.

The horse will go or stay or come back, here and elsewhere, in obedience to balance sheets and to nothing else. The Denver official seems to be wrong in arguing that the horse is permanently out of the "cavalry, the traffic squad, the furrow and the brewery business." Armies still have horses (lots of them), mounted traffic squads have their place, farmers who keep horses in the furrow have credit at the bank, and the carbohydrate delivered by breweries may some day come in other form. At the terrific rate the imperiled world is sinking its wealth, first principles may come back faster than we think.

The veterinarian doesn't get excited over legislating horses off the street, knowing from his knowledge of zoötechnics that the horse, like any other domestic animal, will be used wherever and however he can serve his masters best. It is futile for anyone, in or out of office, to work up opposition against any of the domestic animals. All of them have been here a long, long while and none since Adam and Eve has been discarded.

CURRENT LITERATURE

ABSTRACTS

Equine Encephalomyelitis Virus

Seven of the virus strains increased in virulence following repeated guinea pig passage. This tendency to gain in virulence was not shown by another virus (No. 11). The clinical course produced by virus 6 differed from that caused by the other viruses. All eight of the viruses were typed and shown to be strains of the western equine encephalomyelitis virus.

Ether added to virus-brain suspensions was virucidal. The previously described method for successful isolation of the rabies virus does not appear to be applicable to the western type of equine encephalomyelitis virus. [*Birch, F. M., Veterinary Research Institute, Iowa State College. Studies on Equine Encephalomyelitis. American Journal of Veterinary Research, ii (April 1941), pp. 221-226.*]

Viruses (In Human Medicine)

Eleven different viruses attack the nervous system of man. They are the viruses of:

Infantile paralysis
St. Louis encephalitis (sleeping sickness)
Japanese encephalitis
Equine encephalomyelitis (eastern)
Equine encephalomyelitis (western)
Rabies
Looping ill
Lymphocytic choriomeningitis
Pseudolymphocytic choriomeningitis
"B" virus
Herpes simplex (fever blisters)

Influenza, measles and yellow fever are virus diseases but not of the nervous system. Epidemic encephalitis (sleeping sickness) so prevalent during and after World War I and herpes zoster (shingles) are also in the virus category. To be remembered in regard to the nature of viruses is that they are as distinct from one another as the figured organisms (tuberculosis, typhoid fever, pneumonia, etc.). Except for rabies, herpes and infantile paralysis, all of these viruses are discoveries of the last 5 or 10 years. [*Stafford, Jane. Viruses. Science, n.s. xciii (May 1941), p. 9.*]

Fowl-Pox Virus

Evidence is presented to show that drying of fowl-pox virus at room temperature *in vacuo* apparently lengthens the survival time of the virus *in vitro* when stored at a temperature of 0-4° C. as compared with that resulting from drying at room temperature without vacuum. No appreciable difference in antigenic properties was observed in viruses stored for 24 months *in vacuo* and at atmospheric pressure at 0-4° C. after drying *in vacuo* at room temperature. No advantage of dehydration at the sublimation temperature of dry ice over dehydration at room temperature appeared within a period of 24 months, as judged by viability.

In four instances the longevity of the comb-tissue virus was greater than that of the parallel chorioallantoic virus; in one instance the reverse was true. The egg-propagated virus would, nevertheless, seem to be a superior product to the comb-lesion virus in view of the advantages observed by Brandly and Dunlap in previous studies, namely, greater concentration and freedom from bacterial contamination. [*Brandly, C. A., Graham, R., and Morrill, C. C., College of Agriculture, University of Illinois. Studies on Certain Filtrable Viruses. III. Longevity of Chorioallantoic and Comb-Tissue Fowl-Pox Virus in Vitro. American Journal of Veterinary Research, ii (April 1941), pp. 190-192.*]

Research in Nutrition

Nutritional deficiencies are confused due to the fact that various local names were applied before the cause of the deficiency became recognized. Species differences arise because of synthesis in the body.

The recognition of the distinction between medication and nutrients is essential. Local cheap feed can be utilized by having the deficiencies supplied. The use of urea as a source of nitrogen in ruminants may be important where protein feeds are high priced. Under rigorous conditions, possibilities of good germ plasm for production can not be manifested. Thus, breeding up can exceed the possibilities of environment. [*Hart, G. H., College of Agriculture, University of California. Research in Nutrition: Its Contribution to Livestock Production. Editorial, American Journal of Veterinary Research, ii (April 1941), pp. 131-135.*]

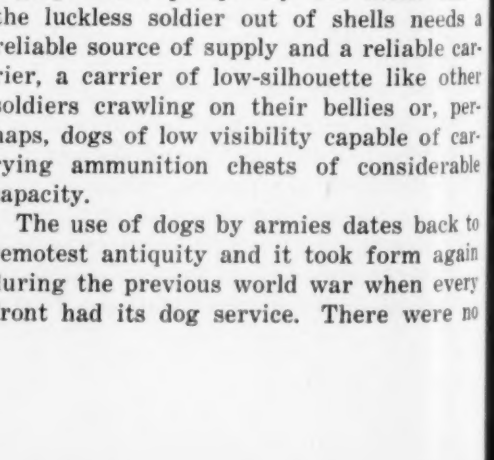
Studies on Equine Encephalomyelitis Virus and Vaccine

Equine encephalomyelitis virus (western type) was propagated by serial passage in 9- to 12-day-old chick embryos in two series, one consisting of 226 successive transfers without return to the original host, the horse, the other consisting of 115 transfers interrupted three times by intracerebral passage through a horse and thence through guinea pigs, then being carried through embryos in succession. The virus in the two series remained virulent for the horse by intracerebral injection and maintained its original immunogenic properties for guinea pigs. The original immunologic type was retained in the two series.

Desiccation under vacuum in the presence of P_2O_5, followed by storage in vacuum-sealed tubes in the refrigerator, provided a stable and reliable virus up to one year after preparation. Vacuum desiccation of frozen virus, followed by sealing under vacuum with rubber stoppers and metal clamps and storage under refrigeration, did not preserve infectivity for four months. Virus survived rapid freezing and storage at low temperature for as long as seven months, the longest interval of storage tested. Virus in infected embryos in the shell remained virulent for at least three months in the refrigerator. [*Shahan, M. S., and Eichhorn, E. A., Pathological Division, U. S. Bureau of Animal Industry. Studies of Chick-Embryo-Propagated Equine Encephalomyelitis Virus and Vaccine: Antigenicity and Preservation. American Journal of Veterinary Research, ii (April 1941), pp. 218-220.*]

Transport of Ammunition

Much ado is made over the rapid-fire guns that have been placed in the hands of the infantryman, but little is said about this soldier's fate when he has shot away the few cartridges he is able to carry. The M-1 rifle, for example, has a fire speed of 136 rounds in five minutes. After that the infantryman's rifle is like a modern fire



Gun-carrying apparatus for a dog team.

engine without water in front of a burning building. What such an engine needs is a high-pressure main to bring water to its high-pressure pump. By the same token the luckless soldier out of shells needs a reliable source of supply and a reliable carrier, a carrier of low-silhouette like other soldiers crawling on their bellies or, perhaps, dogs of low visibility capable of carrying ammunition chests of considerable capacity.

The use of dogs by armies dates back to remotest antiquity and it took form again during the previous world war when every front had its dog service. There were no

less than 10,000 dogs on the western front during that conflict, yet in the preparedness program of the present time little is heard about the use of this faithful servant in the coming defense. When the conflict starts it may be too late to develop such a service.

The Infantry Journal (July-August 1940) proposes the Huskie as the preferable pack dog for small arms ammunition and describes the apparel best suited for the purpose. Each of such dogs can carry one of the following loads: 500 rounds, 60 rounds of 60-mm. shells, 12 canteens of water, 80 clips of cartridges, or 72 hand grenades. Two-dog packs are used for transporting a complete machine-gun outfit. The author points out that the American army does not make much use of dogs. The only ones used are sled dogs of the infantry in Alaska, yet he believes that every streamlined infantry should have a kennel of pack dogs to transport weapons and ammunition. [*Cochran, Lt. Avery M. Canine Cartridge Carrier. Veterinary Bulletin, Medical Corps, U. S. Army, xxxiv (Oct. 1940), pp. 363-370.*]

Phosphorus-Protein Deficiency

Cows experimentally fed a ration low in phosphorus and protein since calfhood remained physically subnormal and manifestly unthrifty in a longtime observation made at the Minnesota experiment station.

Although ovulation was regular as shown by frequent examinations of the uterus and ovaries, the signs of estrum were feebly expressed and sometimes absent in the experimental cows. Conception was not materially interrupted. Out of eight of the experimental animals four adults and three heifers "caught" at the first trial service. One aborted at five months, one had parturient trouble on account of her weak skeleton, and in two the calves suffocated during delivery.

The experimental ration was prairie hay, beet pulp, and small amounts of corn and oats. The percentage of phosphate in the feed ranged from 0.047 to 0.081 and that of crude protein from 4.23 to 6.49.

During this study which lasted from two to five years, the animals were closely watched and their genital organs frequently examined. [*Palmer, L. S., Gullickson, T. W., Boyd, W. L., Fitch, O. P., and Nelson, J. W. The Effect of Rations Deficient in Phosphorus and Protein on Ovulation, Estrus, and Reproduction in dairy cows. Paper No. 1845, Scientific Journal Series, Minnesota Agricultural Experiment Station, published in Journal of Dairy Science, xxiv (March 1941), pp. 199-210.*]

Preliminary Studies on Colloidal Silver-Oxide Treatment of Mastitis

Observations were made on four animals; three were affected in four quarters with *Streptococcus agalactiae* mastitis and one in one quarter with coliform mastitis. An infected quarter of each animal was treated daily by introducing 10 cc. of novoxil (a 5 to 10 per cent dispersion of pure silver oxide in mineral oil) into the milk cistern. From four to six injections eliminated *S. agalactiae* from the milk of the treated quarters for periods of from 11 to 37 days, as shown by bacteriologic examination of incubated milk samples. Reappearance of *S. agalactiae* may have been caused by reinfection from the outside or reactivation of organisms located in remote lesions within the gland. One quarter affected with coliform mastitis has not shown a relapse during a six-month period of observation. Injections made once a day caused a moderate irritation which persisted for periods of from four to ten days, after the last treatment. [*Weirether, F. J., Anderson, E. O., Johnson, R. E., Plastridge, W. N., and Jungherr, E., Storrs Agricultural Experiment Station. A Preliminary Report on the Effect of Colloidal Silver Oxide on Bovine Mastitis. American Journal of Veterinary Research, ii (April 1941), pp. 141-145.*]

BOOK NOTICES

Milk Sickness—Trembles

Among the veritable plagues of the past is milk sickness (called trembles in animals), merciless scourge of the settlers who crossed the Alleghanies to start farming in the "First Great West" (Ohio, Indiana, Illinois, Kentucky), only to find that many regions were uninhabitable owing to a fatal disease of man and animals that depopulated whole villages and communities. All of the horrid details of this tragic ailment are described in a book just out.

Known since the early years of the 19th century when the first hegira of settlers began to clear the forests, till the land and raise livestock, its nature was the subject of endless wranglings among physicians and laymen. Farmers, real estators, bankers and merchants were loathe to admit that theirs was a deadly neighborhood. Although many farmers were convinced that trembles in cows was due to eating white snake root and that drinking their milk and eating their butter was the cause of the disease, many articles published in medical journals denied the allegation. The author quotes freely from these scientific journals to show how widely opinions differed. Articles advancing the toxic plant theory were suppressed to deceive prospective buyers of land and the immigrants. But the author finds numerous articles in contemporary medical journals and the public press which tell the weird story of a plague without parallel that dogged the pioneers of the stricken areas. The mother of Abraham Lincoln died of milk sickness.

Comparative Medicine Not Curricular

Perhaps, nowhere in all medical history has lack of knowledge of comparative pathology, botany and plant geography taken a greater toll in human lives. [Quain's Dictionary of Medicine (1894) in two large volumes, purporting to cover the whole field of human medicine, says nothing of milk sickness. Neither does the American Illustrated Medical Dictionary (Dorland) (1939) clarify the definition.]

The cause of the plague was attributed to contaminated drinking water, mineral poisons (lead, copper, cobalt, arsenic), the morning dew, spiders, flies, fungi, mushrooms, miasms and other agents.

The reason why milk sickness and trembles remained baffling through so many years is explained: (1) Isolating the toxic principle was an intricate chemical problem, (2) the amount of poison the white snake root plant contains varies in different sections, and (3) to sicken, cows must consume a considerable amount of the plant. The well-established fact that cattle grazing on good pastures where the plant was exuberant did not fall sick threw investigators off their guard until it was observed that the browsing of the plant by cattle turned on impoverished pastures was deadly. Yet, feeding experiments carried out and recorded during the whole of the 19th century could not be confirmed by seemingly comparable experiments because of the facts related above. Crawford (1908) of the U. S. Bureau of Plant Industry, after a series of experiments, declared that white snake root is a harmless plant. The author points out this report as a set back. The work in recent years of Couch, Clawson, and Marsh of the U. S. Bureau of Animal Industry and that of Graham and Boughton of the University of Illinois as well as that of the author himself, established the true nature of the cause. It, however, remained for Couch to isolate the toxic principle he named trematol (for trembles) and to which he gave an empirical formula.

This treatise is one of great value in veterinary and human medicine. It gives a long history of this grave disease as told by physicians, politicians, business men, and farmers from the time settlers began to trek over the mountains to farm in the Middlewest until the present day. Thanks

to the researches and observations of the author and to those of the U. S. Bureau of Animal Industry and the Department of Animal Pathology and Hygiene of the University of Illinois, milk sickness of man and trembles of farm animals have been taken from the realm of mystery and fully explained without question of doubt. Cows on bare pastures eating freely of white snake root are poisoned and persons drinking their milk or eating their butter or meat are stricken with milk sickness because the plant contains trematol. Every phase of the disease in the different species of domestic and some wild animals and of man is described.

To be remembered is the fact that milk sickness is still here. Its recrudescence requires but the right combination: hungry cattle turned into woodland pastures where grass is sparse and white snake root is flourishing. Veterinarians and physicians of Ohio, Indiana, Kentucky, Illinois, northern Georgia, North Carolina and Tennessee will find this book as instructive as it is fascinating. [*Milk Sickness Caused by White Snake Root. By Erwin Lincoln Moseley, professor emeritus of biology, State University, Bowling Green, Ohio. Paper. 170 pages. Illustrated. Ohio Academy of Science and the author, Bowling Green, Ohio. Price $1.00.*]

Veterinary Microscopic Anatomy and Embryology

This book outlines a course of lectures on microscopic anatomy and embryology for veterinary students and lists a large number of references with each of the topics treated. It includes the whole gamut of histology and embryology set down in the order a teacher would be apt to follow. No detail appears to have been omitted in the outline. There is no text. The object is to supplement text books and to introduce in lectures new facts and interpretations as they apply to other branches of the veterinary-medical curriculum (physiology, pathology, surgery, clinical medicine). The references are too numerous for undergraduate study of these elementary branches, valuable as they would be for profound graduate work. [*Lecture Outlines and Laboratory Guide for Microscopic Anatomy and Embryology. By H. L. Foust, D.V.M., professor of veterinary anatomy, Iowa State College. 148 mimeographed pages. Spiral bound, paper. Burgess Publishing Company, Minneapolis, 1939. Price $2.00.*]

Experimental Physiology

The fourth edition of this manual, published in 1940, appears to have escaped the reviewers of current veterinary literature, as did also the previous editions. While in a sense an elementary introduction to the subject of physiology, it aims to impress the student and casual reader by setting down the experimental proofs through which a knowledge of physiology is obtained. The number of experiments described is 217 and they cover the different apparatus which make up the integrated being.

The manual is not held out as a text book but, rather, as a reference and laboratory guide for those pursuing the study of physiology. The text is interspersed with clarifying tables, drawings, formulas, percentage lists, chemical reactions, and ample white space for making notes. [*Laboratory Manual for Experimental Physiology. By H. D. Bergman, D.V.M., and E. A. Hewitt, D.V.M., Ph.D., Department of Veterinary Physiology and Pharmacology, Iowa State College. One hundred and twelve 9" x 7" mimeographed pages. Paper. Burgess Publishing Company, Minneapolis, 1940. Price $1.75.*]

In regard to its nutrition, the new being is most neglected during the prenatal period. Proper feeding of the mammal begins at or even before conception, not after parturition. When the new being arrives, it may be too late to save its life by feeding.

The cash income per farm in 1916 was $1,182 and the average wages paid to farm hands was $32.84 a month. In 1939, the cash income was but $1,117 and the wages of farm hands averaged $35.85 a month.—*From Wallace's Farmer.*

Annual Report of the Indiana Veterinary Medical Association

This is a mimeogram of 131 pages containing the roster of officers, business proceedings, committee reports, resolutions, and technical program of the 1941 meeting of the Indiana state association together with a general report by State Veterinarian Axby on the status of livestock sanitary work during the current year. The work done on bovine tuberculosis, brucellosis, pullorum disease, scabies in cattle and sheep, and ailments of minor importance is reviewed.

The scientific papers contained are:

1) Ear, Eye, Nose and Throat Therapy, by Edw. K. Sales, associate professor of surgery, Michigan State College, describing briefly the treatment of the more common affections of these organs.

2) Enteritis, by Frank Breed, pathologist of the Nordon Laboratories, Lincoln, Neb., treats particularly of the general subject in swine with special reference to the rôle of *Salmonella cholera suis* and the treatment of the enteritis and general malaise it produces by means of alkaline salts. The pathologic lesions found in the more common diseases of swine are tabulated.

3) Sheep Nutrition, by L. D. Frederick, chief veterinarian of Swift & Company, Chicago, emphasizes the importance of keeping abreast with the times on nutrition in domestic animals. In this respect the 50 million sheep of the United States are no exception. Though sheep subsist on roughage that would be wasted without them, adequate rationing is essential in any program of sheep raising. In "flushing" flocks for higher lamb production, for example, the rams should not be neglected. Rations for the flushing and gestation periods are described, as are also the food requirements of feeder stock, the use of the cereal grains of the American farm, of mineral supplements, of molasses, alfalfa and other hays, and cottonseed meal.

4) Feed Lot Hemorrhagic Toxemia, by Ashe Lockhart, of Ashe Lockhart, Inc., Kansas City, Mo., summarizes the cause, diagnosis, prevention and treatment of an acute toxemia of cattle resembling hemorrhagic septicemia.

5) Pulmonary Diseases of Animals, by J. D. Ray, pathologist of The Corn States Serum Company, Omaha, Neb., breaks down to more understandable pathology the infection of cattle commonly called shipping fever, pulmonary edema of cattle and hogs, calf pneumonia, lungworms, "big head" of sheep, *Alcaligenes bronchisepticus* infection of dogs, swine influenza, mechanical pneumonias and other affections whose microbic flora are more or less mixed and interrelated.

6) Phenothiazine in the Treatment of Gastrointestinal Parasites of Animals, by L. E. Boley, Norman D. Levine, Wilson L. Wright and Robert Graham of the University of Illinois, reviews the history of this spectacular newcomer into the list of anthelmintics and its merits in the different species of farm animals. Critical tests carried out in sheep, goats, horses and swine are recorded. The parasites against which it was found to be ineffective are named, and a long bibliography, eleven tables and four excellent illustrations are appended.

7) Swine Diseases, by L. E. Pinkerton, superintendent of the Fort Dodge Serum Company, Fort Dodge, Iowa, treats mainly of differential diagnosis of the leading swine plagues: cholera, erysipelas, enteritis. The salt (sodium chloride) treatment of enteritis is briefly described.

8) Listerella Infections in Domestic Animals, by Robert Graham, H. R. Hester, and Norman D. Levine, University of Illinois, gives a brief history of listerellosis and describes in detail outbreaks in four flocks of sheep and four herds of cattle in Illinois. The paper includes the characters of the genus Listeria, the symptoms, pathology, course, diagnosis, prevention and treatment, and the literature cited.

8) Poultry Practice Can Be Profitable, by Cliff Carpenter, pathologist, Allied Mills, Inc., Fort Wayne, Ind., is a well-documented report of investigations made for the special purpose of showing how veterinarians may enter more actively into the field of poultry medicine. In short, specific directions are set down for the practitioner's guidance.

9) Limitations of Biological Products in Swine-Disease Control, by Ashe Lockhart, *ibid.*, describes the changes in the names of the biological products directed by the U. S. Bureau of Animal Industry which went into effect January 1, 1941, and the reasons that such changes were advisable.

10) Swine Erysipelas, by T. W. Munce, pathologist, Allied Laboratories, Sioux City, Iowa, is a comprehensive review of the known facts about this ever-increasing swine plague of American farms. No generality is omitted and in respect to the diagnosis of the different forms and the handling of the disease, the details are complimentary.

11) Feeds and Their Deficiencies, by Frank King and C. L. Shrewsbury, Purdue University, treats the subject from the viewpoints of the layman and the scientist. The various feeds available for the nourishment of farm animals are described as to their food value and use together with the supplements needed for improving nutrition.

12) Army Veterinary Service, by Col. R. A.

Kelser, director of the Veterinary Corps of the United States Army, spoke of the need of a veterinary service in these critical days of the world's history, of the probable utilization of animal transport in the future military set-up, of the numerous animals employed in the German army, and of the horse and mule situation in the present preparedness program.

The Veterinary Corps personnel of the present Tables of Organization is described. Here the uninformed will be interested in knowing the exact number of veterinary officers the new tables provide. The number varies from one such officer in the completely horseless unit who serves as food inspector to three veterinary officers and 14 enlisted men for each mounted regiment. The number provided for complete tactical units and the various departments and services composing the military force of the nation are listed in detail for, we believe, the first time since the present steps to augment our army were taken. The Colonel closes his remarks by saying, "I merely want to reiterate that in spite of all that has been written and said regarding highly mechanized armies, there is still a very important place in the modern military establishment for the veterinarian."

13) Diseases of Dairy and Feeder Cattle, by W. C. Glenney, Tri-City Animal Hospital, Elgin, Ill., deals with the subjects of shipping fever, brucellosis, actinomycosis, traumatic pericarditis and retained placenta.

14) The book closes with a discussion of calfhood vaccination in the prevention of bovine brucellosis by H. M. O'Rear, senior veterinarian, Tuberculosis Eradication Division, U. S. Bureau of Animal Industry. Tabulated results of the experimental work to date and the general recommendations for its utilization in the several states are given.

[*Annual Report of the Indiana Veterinary Medical Association, 1941. 131 mimeographed pages, 9" x 6½". Edited by Estera Whitaker, Indianapolis, Ind. Free to members. Price to others, not given.*]

Zootechnia Especial—Bovinos (Cattle)

This book is Volume III, Part I of a series of books on zoötechnics and veterinary medicine, a text showing the unity of these two subjects in Brazil as they are destined to be in all countries at some time in the future. The rapid progress of veterinary science all over the world and its intimate interlocking with every problem of animal production seems to make the espousal of these two studies inevitable.

Volume I, *Zootechnia Especial—Equideos* (horses) and Volume II, *Zootechnia Especial—Suinos* (hogs), published in 1933, following *Acuarioses des Oiseaux Domestiques* (fowl) published in French by Vigot Frères, Paris, together with the present volume on cattle, make up a set of books of up-to-date material covering the main domestic animal problems of Brazil. *Zootechnia Especial* Volume III, Parts II and III (Bovinos), and *Zootechnia Especial* Volume IV—Ovinos e Caprinos (sheep and goats) are in preparation.

The author is Prof. Guilherme E. Hermsdorff of the national veterinary college of Brazil who is known in world veterinary circles as member of the Permanent Committee of the International Veterinary Congress.

Chapter I is a comprehensive brief on the origin of the horned ruminant as seen by paleontologists through the prehistoric ages; chapters II to IV describe the usual zoölogical characters of the genus Bos. spp. needed to round out an understanding of this indispensable group of domestic animals, their care, management, feeding and breeding. The chapters on reproduction in taking the reader through sterility, gestation, sexual impotence, parturition, artificial insemination, abortion, castration, etc., etc., clearly establish the inseparable relationship of animal husbandry and veterinary medicine of which we speak, in fact, relations so intimate as to map out the veterinary curriculum of the near future. The author treats artificial insemination with an excellently illustrated essay covering the details as we know them. The bibliography is limited to French, Spanish and Portugese. [*Zootechnia Especial, Bovinos, Volume III, Part I. In Portugese. By Guilherme E. Hermsdorff. Paper. 380 pages. Illustrated. Imprensa Nacional, Rio de Janeiro. 1941.*]

THE NEWS

AVMA Activities

Special Defense Committee Meets

At a conference held in Washington, D. C., June 5-6 to discuss veterinary questions related to national defense, Chairman Wm. Moore of the special committee assigned to study such questions met with President Wight, John R. Mohler, Colonel R. A. Kelser and S. O. Fladness.

The name of the committee was changed from "Special Committee on National Defense" to "Special Committee on Veterinary Participation in National Defense," since the latter was thought to be more appropriate.

Plans were laid for giving more publicity to the importance of livestock to the nation's welfare and to the development of alertness in detecting any evidence of contagious diseases of animals not now present in the United States.

Chairman Moore invites practical suggestions for increasing the utility of this committee.

Attention: McKillip Alumni

As announced on page 529 of the June 1941 issue, McKillip alumni are to be organized at the Indianapolis session. In this connection, R. E. Kepner, assistant general chairman of the Committee on Local Arrangements, urges the graduates of this college to give full support to the project by attending the convention and participating in the organization of this group.

Indiana's Golfing Veterinarians Accept the Iowa Challenge

"Indiana's veterinary golfers will be waiting for the boys from Iowa—and we're glad to accept their challenge," says Wayne Alter of St. Paul, Ind., chairman of the Golf Tournament Committee for the Indianapolis session, in response to the challenge of the Iowa Veterinary Golfers' Association published on page 535 of the June 1941 issue.

All states are invited (and expected) to send teams into the competition, which will be staged at the Coffin course in Indianapolis, Monday, August 11. There will be prizes for the members of the winning teams, as well as consolation awards.

Can You Help to Locate These Lost Members?

The aid of JOURNAL readers is solicited in locating the following members, mail to whom has been returned to the Association's central office. The last known address of each is given. Should you be able to provide information as to present residence, your advice via postcard or letter will be greatly appreciated.

[Through responses to an identical request published in this column last month, more than 50 per cent of our lost members have been located. Thanks for your help.—*Ed.*]

Austin, E. M., 3681 Indiana St., San Diego, Calif.
Bailey, L. P., Bluefield, Va.
Bell, William Thomas, 1255 Ponce De Leon Ave., Atlanta, Ga.
Blumenthal, Jacob Carl, General Delivery, Crookston, Minn.
Boyce, H. J., 48 Notre Dame Ave., Manchester, N. H.
Border, C. R., P. O. Box 68, Elizabeth City, N. Car.
Boyer, H. J., 48 Notre Dame Ave., Manchester, N. H.
Burns, Chas. G., Tallahassee, Fla.
Cassidy, D. L., Jefferson Barracks, Mo.
Coburn, George C., 1128 Kansas Ave., Topeka, Kan.
Deane, Capt. Don L., Army Medical Center, Washington, D. C.
Decker, H. L., College Corner, Ohio.
Eichhorn, E. A., Army Medical Center, Washington, D. C.
Harris, Frank T., 58 A Latona St., San Francisco, Calif.
Howarth, Carl R., Rt. 1, Box 24, Salem, Ore.
Klein, James E., Gainsville, Ga.
Leonard, George A., Hebron, Neb.
Little, George Watson, 143 W. 77th St., New York, N. Y.
Loomis, Ralph E., 10 Main St., Blossburg, Pa.
Mathis, Rudy C., State Veterinarian, Atlanta, Ga.
Maugel, J. P., 6100 N. Marshall St., Philadelphia, Pa.
Mitchell, James F., 528 Kirkman St., Lake Charles, La.
Nagel, John K., 631 First Ave., Monte Vista, Colo.
Noller, Richard, Mankato, Kan.
Norris, C. L., State Dept. of Agriculture, Olympia, Wash.
Nusser, Wm. A., York Rd., Timonium, Md.
O'Reilly, Thomas O., 204 Federal Bldg., Topeka, Kan.
Palmer, Clarence R., Rt. 1, Box 195, Walnut Creek, Calif.

Parrish, R. D., 3492 Woolwine, Los Angeles, Calif.
Reid, Joseph E., Garrettsville, Ohio.
Reneau, Jr., J. B., Box 457, Paducah, Texas.
Rivers, Ernest W., 110 CCC, Woodsville, N. H.
Rodgers, Robert J., Asheville, N. Car.
Rosenoff, Theodore D., 642 N. Oak St., Spokane, Wash.
Ruebel, Lawrence V., 211 Cedar St., Sandpoint, Idaho.
Sarde, Robert M., c/o Wilmington Provision Co., Wilmington, Del.
Snodgrass, W. B., Veterinary Hospital, Salem, Ore.
Spangler, Capt. Harold M., 1301 N. 18th Ave., Pensacola, Fla.
Spring, J. E., Gastonia, N. Car.
Steckel, Leo M., c/o C. Paul, 7 S. Madison Ave., Spring Valley, N. Y.
Steele, Capt. M. L., Fort Leavenworth, Kan.
Swarthout, Edward W., 206 E. Church St., Collinsville, Ill.
Thompson, J. C., Department of Agriculture, Olympia, Wash.
Thomson, Lt. Burton C., 213 Va. Ave., Fayetteville, N. Car.
Turner, C. W., Shasta Highway, Chico, Calif.
Whittlesey, J. M. (honorary member), Lakeside, Conn.
Wight, Col. Allen C., Fort Ord, Calif.
Wilmot, Clement E., Box 962, Eureka, Calif.

Proposed Amendments to the Administrative By-Laws*

Proposal 1

Add a new paragraph to section 3 of article VIII to read:

"a) Vacancies occurring on the Executive Board for any reason, during the term for which the member was duly elected, shall be filled by appointment to be made by the president. The appointee shall serve out the unexpired term of the member whose office he is appointed to fill."

Comment: Although this power is presumably conferred upon the president under his duties as outlined in article II, section 3, paragraph c, of the by-laws, it is probably desirable that this specific provision be made.

Proposal 2

Add a new section to article VIII to read:

"*Section 7.*—No member of the Executive Board shall be eligible to serve as a delegate or alternate to the House of Representatives."

Comment: This provision was in the old constitution and by-laws but was apparently overlooked in drawing up the new one.

Proposal 3

If the foregoing is adopted, it is suggested that a similar provision be added to article IX; add a new paragraph to section 3 as follows:

"c) No member of the Executive Board shall be elected or designated to serve as a delegate or alternate."

Comment: This repetition may be unnecessary but is considered desirable.

Proposal 4

Amend article VI by adding another section to read:

"*Section 6.*—A vacancy created in the office of treasurer by any cause shall be filled promptly by the Board of Governors, the appointment being made for the unexpired term."

Comment: Provision for replacement of every vital association officer has been made except in the instance of the treasurer. This amendment is aimed to correct this lack.

Proposal 5

Amend paragraph b of section 2, article X so that the next to the last sentence will read:

"Objections to an applicant's election shall be subject to review and action by the Executive Board, and decisions thereon shall be contained in the report of the Board to the House of Representatives."

Also, delete the last sentence in this paragraph.

Comment: The two sentences as they now stand are ambiguous.

Proposal 6

Amend paragraph a under "Committee on Program" of section 1 of article XII to read as follows:

"a) *Personnel.*—This committee shall consist of the chairmen and secretaries of the regular sections, and the executive secretary, who shall act as chairman."

Comment: In adopting the newly-revised constitution and administrative by-laws at the Washington session, a proposal was approved to set up a "Scientific Council" (see section 3 of article XIV), which comprises the section officers and charges them with the identical duties of the Committee on Program. It is desirable, therefore, to abolish either the Committee on Program or the Scientific Council in order to avoid confliction.

It is suggested that the Committee on Program be retained and broadened in membership as indicated and that the term "Scientific Council" be dropped as unnecessary.

Proposal 7

If proposal 6 is approved, section 3 of article XIV should be changed to read:

"*Section 3.*—The officers of the regular sections shall serve as the Committee on Program as provided in article XII."

Proposal 8

Add sections 4 and 5 to article XIV as follows:

"*Section 4.*—Papers Read by Title: No paper shall be published as having been read before

*These proposals have been suggested for consideration by the Executive Board and House of Representatives at the Indianapolis session, in order to correct certain minor flaws in the revision adopted last year, and are made in accordance with section 3, article XIII of the by-laws.

a section unless it has actually been read, or unless the section shall vote to have it read by title."

"Section 5.—Property of Papers: All papers and reports of any nature presented to the Association, or to any section, shall be the property of the Association, if approved for publication in the Association journals. Prior publication elsewhere of any such papers or reports, or official abstracts thereof, shall not be made except by consent of the Board of Governors."

Proposal 9

Change section 3 of article XVII to read as follows:

"Section 3.—The Board of Governors shall serve as the Committee on JOURNAL, acting in the capacity of a managing editor."

APPLICATIONS

Rules Concerning Applications for Membership (Quoted from the Administrative By-Laws):

Candidates for membership shall present an application to the executive secretary on a special form approved by the Board of Governors. The form shall state the applicant's race, name, age, education, year of graduating and work in which he is engaged. It shall contain the endorsement of two members, one of whom shall live in the same state, province or territory as the applicant.

Notice of all applications shall be published in the JOURNAL for two successive months. The first notice shall give the applicant's full name, year of graduation, post office address, and the names of his endorsers. The applicant shall be declared elected and so notified 30 days after the second notice has been published, provided no objection to his election has been filed in writing. Objections to an applicant's election shall be subject to the action of the Executive Board. A rejected applicant may present his defense to the Executive Board through the House of Representatives.

First Listing*

ABINANTI, FRANCIS R.
28 Hillway Ave., San Francisco, Calif.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and G A. Williams.

ACKERMAN, ANTHONY J.
44-10 Ketcham St., Elmhurst, L. I., N. Y.
D.V.M., Colorado State College, 1941.
Vouchers: H. C. Stephenson and H. J. Milks.

ACKERMANN, LEON F.
1616 18th St., Boulder, Colo.
D.V.M., Colorado State College, 1941.
Vouchers: Geo. H. Glover and James Farquharson.

ARNOLD, JOHN P.
R.F.D. No 2, Long Prairie, Minn.
D.V.M., Iowa State College, 1941.
Vouchers: Russell A. Runnells and H. D. Bergman.

AVERY, M. R. JR.
Red Bay, Ala.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and E. H. Walker.

*A large number of student applications could not be included in this issue because of the late date they were received, but will appear in the August number.

BALL, DALE DAVID
McCallsburg, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: I. A. Merchant and Dwight A. Smith.

BANKS, WILLIAM C.
701 E. 26th St., Bryan, Texas.
D.V.M., Texas A & M College, 1941.
Vouchers: Geo. C. Rich and R. P. Marsteller.

BARRON, HORACE T.
Route 3, Bryan, Texas.
D.V.M., Texas A & M College, 1941.
Vouchers: Geo. C. Rich and R. P. Marsteller.

BARSCHAK, RICHARD
31 Baltimore St., Hartford, Conn.
D.V.M., Michigan State College, 1941.
Vouchers: C. F. Clark and B. J. Killham.

BATEMAN, JOSEPH C.
Columbia, N. Car.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and F. P. Woolf.

BEACH, MELVIN K.
Route 2, Box 174, Delta, Colo.
D.V.M., Colorado State College, 1941.
Vouchers: K. W. Smith and John C. Williams.

BEARDMORE, HOWARD F.
Missoula, Mont.
D.V.M., Iowa State College, 1941.
Vouchers: E. A. Hewitt and C. H. Covault.

BEASLEY, JOHN V. JR.
1142 Carterett, Pueblo, Colo.
D.V.M., Colorado State College, 1941.
Vouchers: John C. Williams and James Farquharson.

BEEMER, MELVIN REED
Gravity, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: F. E. Walsh and Geo. R. Fowler.

BENDERSKY, SAMUEL
Nassau, N. Y.
D.V.M, Cornell University, 1941.
Vouchers: H. C. Stephenson and H. J. Milks.

BENNETT, JOHN THOMAS
Box 12, Wilmette, Ill.
D.V.M., Colorado State College, 1941.
Vouchers: James Farquharson and Harry W. Johnson.

BERRY, SIDNEY A. JR.
Vina, Ala.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and F. P. Woolf.

BIRN, MARTIN
1445 Otis Place N. W., Washington, D. C.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and E. H. Walker.

BISHOP, VINCIL C.
Torrington, Wyo.
D.V.M., Colorado State College, 1941.
Vouchers: K. W. Smith and John C. Williams.

BJORK, CLIFFORD A.
1709 Opal St., Pullman, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

BLAKE, W. P.
1225 14th Ave., Greeley, Colo.
D.V.M., Colorado State College, 1941.
Vouchers: James Farquharson and Harry W. Johnson.

BLUNSCHA, JOHN E. JR.
P. O. Box 1575, Alexandria, La.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: R. S. Sugg and E. S. Winters.

BOERO, ARTHUR J.
4025 Dublin Blvd., Hayward, Calif.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and Ernest C. McCulloch.

BOLTON, GLEN S.
Longmont, Colo.
D.V.M., Colorado State College, 1941.
Vouchers: K. W. Smith and James Farquharson.

BOWERS, FREDERICK U.
Victorville, Calif.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and G. A. Williams.

BOYETTE, E. F.
Smithfield, N. Car.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and F. P. Woolf.

BRADBURY, RAY HARVEY
Tacoma Veterinary Hospital, Tacoma, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and G. A. Williams.

BRISNEHAN, EDMUND R.
315 Main St, Longmont, Colo.
D.V.M., Colorado State College, 1941.
Vouchers: K. W. Smith and John C. Williams.

BRITTON, JOHN
Division of Veterinary Science, University of California, Berkeley, Calif.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

BROWN, PAUL C.
203 M. A. C. Ave., East Lansing, Mich.
D.V.M., Michigan State College, 1941.
Vouchers: C. F. Clark and B. J. Killham.

BROWN, THOMAS EDWARD
Route 4, Spartanburg, S. Car.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: I. S. McAdory and W. E. Cotton.

BRYAN, DONALD IRVING
Washingtonville, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and A. G. Danks.

BURNS, LESLIE
800 Waterloo St., Los Angeles, Calif.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and Ernest C. McCulloch.

BYNUM, ROBERT
R.F.D. 2, Ellensburg, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E E. Wegner and J. E. McCoy.

CAMPBELL, ROBERT L.
723 Smith St., Brookfield, Mo.
D.V.M., Iowa State College, 1941.
Vouchers: M. J. Johnson and C. H. Covault.

CAREY, JOHN W.
West Liberty, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: Geo. R. Fowler and Dwight A. Smith.

CARTER, LELAND B.
Gresham, Ore.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

CHARLES, ARTHUR S.
1212 Ocean Ave., Brooklyn, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

CHAZEY, EDWARD P.
436 E. 5th St., Brooklyn, N. Y.
D.V.M., Michigan State College, 1941.
Vouchers: C. F. Clark and B. J. Killham.

CHRISTENSEN, JAMES M.
Ephraim, Utah.
D.V.M., Colorado State College, 1941.
Vouchers: James Farquharson and Harry W. Johnson.

CLANTON, G. H.
Box 2219, Orlando, Fla.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and T. C. Fitzgerald.

CLARKE, DON WM.
1507 W. 13th Ave., Spokane, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

CONNER, ALEXANDER
Avoca, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

CONNER, GABEL H.
1700 Monroe St., Pullman, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

COONS, MAX CHARLES
Lisbon, N. Dak.
D.V.M., Iowa State College, 1941.
Vouchers: Geo. R. Fowler and C. H. Covault.

CORNWELL, GERALD W.
Ankeny, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: C. H. Covault and M. J. Johnson.

COTTER, W. D.
Tabor, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: M. J. Johnson and C. H. Covault.

CUMMINGS, FREDERICK C.
c/o Don Cameron, Naselle, Wash.
D.V.M., Colorado State College, 1941.
Vouchers: K. W. Smith and James Farquharson.

CURTS, KEPHART M.
3926 Harrison St., Kansas City, Mo.
D.V.M., Texas A & M College, 1941.
Vouchers: Chas. D. Folse and R. P. Marsteller.

DAKIN, W. V.
517 S. Howes, Fort Collins, Colo.
D.V.M., Colorado State College, 1941.
Vouchers: Harry W. Johnson and James Farquharson.

DEAN, DONALD J.
321 First St., Scotia, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

DEMATTEI, JOHN D.
905 Rosa St., San Jose, Calif.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and G. A. Williams.

DEMKE, DONALD
Box 180, Stephenville, Texas.
D.V.M., Texas A & M College, 1941.
Vouchers: R. C. Dunn and R. P. Marsteller.

DERRER, REYNOLD
Lanark, Ill.
D.V.M., Iowa State College, 1941.
Vouchers: M. J. Johnson and Dwight A. Smith.

DETTMAN, E. J.
Union City, Ind.
M.D.V., McKillip Veterinary College, 1941.
Vouchers: J. L. Kixmiller and H. Meade Hamilton.

DICKINSON, ROBERT A.
224 Mildred St., Montgomery, Ala.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and F. P. Woolf.

DODDS, R. CULLEN
Nicollet, Minn.
D.V.M., Iowa State College, 1941.
Vouchers: H. D. Bergman and E. A. Hewitt.

DOLE, JOEL R.
Danville, Vt.
D.V.M., Michigan State College, 1941.
Vouchers: C. F. Clark and B. J. Killham.

DONNELLY, ROBERT N.
Wakiakum County Courthouse, Cathlamet, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

DUNNE, H. W.
146 Hyland Ave., Ames, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: C. H. Covault and Russell A. Runnells.

EAKIN, C. E.
Lake City, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: H. D. Bergman and Geo. R. Fowler

EARL, ALFRED E.
R. D. 2, Morristown, N. J.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and A. G. Danks

EDER, E. PAUL
Blue Earth, Minn.
D.V.M., Iowa State College, 1941.
Vouchers: H. D. Bergman and E. A. Hewitt

EVANS, CALVIN W.
Alpha Psi Fraternity, Auburn, Ala.
D.V.M., Alabama Polytechnic Institute, 1941
Vouchers: W. E. Cotton and I. S. McAdory.

EVERLY, WM.
Manlius, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and H. J. Milks

FAILING, FRANK W.
469 W. Wabasha, Winona, Minn.
D.V.M., Iowa State College, 1941.
Vouchers: W. H. Chivers and M. J. Johnson

FALES, ROGER
Derby, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and A. G. Danks

FAUGHN, JAMES A.
Benton, Ky.
D.V.M., Alabama Polytechnic Institute, 1941
Vouchers: E. S. Winters and L. E. Starr.

FEHL, H. G.
Sturgeon Bay, Wis.
D.V.M., Iowa State College, 1941.
Vouchers: I. A. Merchant and E. A. Benbrook.

FERRIS, JOSEPH
Ithaca Memorial Hospital, Ithaca, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and H. J. Milks

FLETCHER, J. C.
General Delivery, Prescott, Ariz.
D.V.M., Colorado State College, 1941.
Vouchers: John C. Williams and James Farquharson.

FOBIAN, VERNON C.
R. D. 1, Ballston Lake, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

FORLAND, L. M.
Manly, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: F. E. Walsh and Chas. Murray.

FORSYTHE, HELEN LOUISE
8307 N. Ivanhoe St., Portland, Ore.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

FURGESON, HARRY E.
D.V.M., Colorado State College, 1941.
Vouchers: Harry W. Johnson and James Farquharson.

Colorado '41

Every graduating senior of Colorado State College has applied for membership in the Association. Left to right, they are (top row) John T. Bennett, John C. Fletcher, Cecil J. Matlock, Gail H. Gilbert, Winston H. Tornow, John V. Beasley; (second row) Wm. V. Dakin, Allen M. Heisel, Harry E. Furgeson, Melvin K. Beach, Vincil C. Bishop, Paul Candlin; (third row) Frederick C. Cummings, Joseph J. Hird, Edmund R. Brisnehan, Clyde W. Young, Boyd B. Merrick, Duane L. Milbradt, Wm. M. Stansbury, Harold F. Newton; (fourth row) Loren J. Swanson, James D. Vagneur, Donald D. Ramsay, Jack R. Pitcher, Harris Sorensen, Clayton E. Mikkelson, Lewis M. Tarr; (bottom row) Dail L. Thornburg, Leon F. Ackermann, Robert Lee Phillips, Walter P. Blake, Glen S. Bolton, James M. Christensen.

EARLICK, NORMAN
8834 S. Thompson, Tacoma, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

GILBERT, GAIL H.
1015 W. Mountain Ave., Fort Collins, Colo.
D.V.M., Colorado State College, 1941.
Vouchers: John C. Williams and Geo. H. Glover.

GLAISYER, R. ALLINGTON
Redmond, Ore.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and F. N. Bell.

GREENE, JAMES G.
47 Eighth Ave., Passaic, N. J.
D.V.M., Michigan State College, 1941.
Vouchers: C. F. Clark and B. J. Killham.

GREENLEE, HOMER H.
206 S. Main St., Fort Worth, Texas.
D.V.M., Texas A & M College, 1941.
Vouchers: Geo. C. Rich and R. P. Marsteller.

GROVES, NEWELL PARKER
11434 S. Berendo Ave., Los Angeles, Calif.
D.V.M., State College of Washington 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

HADLEY, V. S.
Moorsville, Ind.
D.V.M., Indiana Veterinary College, 1916.
Vouchers: C. C. Donelson and E. J. Tansey.

HAIRE, W. C.
Quincy, Fla.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and F. P. Woolf.

HARMON, KARL S.
The Danby Road, R.D. 4, Ithaca, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

HAWORTH, S. D.
Pauls Valley, Okla.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and F. P. Woolf.

HEISEL, ALLEN M.
Cascade, Colo.
D.V.M., Colorado State College, 1941.
Vouchers: James Farquharson and Harry W. Johnson.

HELSEL, H. J.
303 Glenwood Ave., Syracuse, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

HELVIG, RAYMOND
Forest City, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: I. A. Merchant and Geo. R. Fowler.

HERR, FRANK M.
Route 2, Wenatchee, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

HIRD, JOSEPH J.
3445 W. 34th Ave., Denver, Colo.
D.V.M., Colorado State College, 1941.
Vouchers: Harry W. Johnson and James Farquharson.

HOPKINS, GLENN D.
708 E. 27th St., Spokane, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

HORNE, C. H.
Decatur, Miss.
D.V.M., Texas A & M College, 1941.
Vouchers: Geo. C. Rich and R. P. Marsteller.

HOROWITZ, NATHAN
1761 79th St., Brooklyn, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

HOUSTON, MONTGOMERY LEE
1602 Lake Drive, South Milwaukee, Wis.
D.V.M., Iowa State College, 1941.
Vouchers: Chas. Murray and I. A. Merchant.

HUGINS, J. D.
Box 1892, College Station, Texas.
D.V.M., Texas A & M College, 1941.
Vouchers: R. C. Dunn and R. P. Marsteller.

HUMPHREY, WEDEN P.
125 W. Fesler St., Santa Maria, Calif.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

INGRAM, HOWARD EUGENE
Box 2407, College Station, Texas.
D.V.M., Texas A & M College, 1941.
Vouchers: R. C. Dunn and R. P. Marsteller.

JENSEN, HARLAN E.
Knoxville, Ill.
D.V.M., Iowa State College, 1941.
Vouchers: Russell A. Runnells and Chas. Murray.

JEROME, NEWELL G.
Wilson, Ark.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and F. P. Woolf.

JOHNSON, CLARENCE ELMER
Belgrade, Minn.
D.V.M., Iowa State College, 1941.
Vouchers: I. A. Merchant and H. D. Bergman.

JONES, DALLEN HALL
Oakland, Ore.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

JONES, MAX W.
512 S. Dubuque St., Iowa City, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: H. D. Bergman and M. J. Johnson.

JONES, THOS. K.
350 W. Beecher Ave., Jacksonville, Ill.
D.V.M., Chicago Veterinary College, 1918.
Vouchers: A. E. Wight, H. M. O'Rear and W. E. McGarth.

KINNEY, N. K.
Newell, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: H. D. Bergman and Dwight A. Smith.

KINSEY, BILL H.
138 Cedar Drive, Auburn, Ala.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and F. P. Woolf.

KIRBY, T. C.
Simsboro, La.
D.V.M., Texas A & M College, 1941.
Vouchers: Geo. C. Rich and R. P. Marsteller.

KLOOSTER, CLARENCE J.
R.F.D. No. 1, Byron Center, Mich.
D.V.M., Michigan State College, 1941.
Vouchers: C. F. Clark and B. J. Killham.

KNOOP, WM.
LeMars, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: H. D. Bergman and E. A. Hewitt.

KORTENBER, JOHN J.
910 Bell Ave., New Haven, Ind.
D.V.M., Michigan State College, 1941.
Vouchers: F. C. Tucker and W. C. Kortenber.

Cornell '41

The graduating seniors of the New York State Veterinary College at Cornell University have all applied for membership in the Association. Left to right, they are (top row) N. Horowitz, K. S. Harmon, E. W. Simmons, R. R. Fales, S. E. Spanier, D. H. Siver, J. Ferris, F. O. Wright, H. Polansky, A. Conner; (middle row) P. G. Papish, D. J. Dean, B. A. Linden, R. A. Woodruff, A. W. Rice, D. I. Bryan, G. V. McKinney, L. W. Mick, A. J. Ackerman, E. W. Tucker; (seated) E. F. Steinfeldt, V. C. Fobian, H. J. Helsel, L. D. Snyder, R. H. Udall, R. V. Milks, A. W. Sylstra. (Absentees: S. Bendersky, J. W. Britton, A. S. Charles, A. E. Earl, W. P. Everly, H. Maxwell, M. Meisels, V. J. Peppe, H. B. Risley, G. H. Sheridan, J. R. Williamson.)

KRAFT, JAMES C.
1101 Westlake N., Seattle, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and N. G. Covington.

KUFRIN, R. STEVEN
Gaylord, Minn.
D.V.M., Iowa State College, 1941.
Vouchers: M. J. Johnson and C. H. Covault.

LANNEN, RICHARD P.
Howell, Mich.
D.V.M., Michigan State College, 1941.
Vouchers: E. S. Conklin and C. F. Clark.

LEWALLEN, G. L.
3700 Fourth St. N., St. Petersburg, Fla.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and F. P. Woolf.

LEWIS, ROBERT F.
1807 E. St., Pullman, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

LIGHTCAP, GEORGE C.
911 N. Walnut St., Lansdale, Pa.
D.V.M., Iowa State College, 1941.
Vouchers: I. A. Merchant and E. A. Hewitt.

LINDEN, B. A.
71 Rhode Island Ave., East Orange, N. J.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

LINDENMAYER, J. E.
1400 Maiden Lane, Pullman, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and G. A. Williams.

LINDENSTRUTH, ROBERT WILLIAM
c/o Mrs. Ella M. Galbraith, 305 W. Jackson St., Marshfield, Mo.
D.V.M., Iowa State College, 1941.
Vouchers: Geo. R. Fowler and M. J. Johnson.

LINDLEY, PAUL S.
Paoli, Ind.
V.S., Indiana Veterinary College, 1904.
Vouchers: J. L. Kixmiller and J. L. Axby.

LLEWELLYN, LEW
112 S. Hyland, Ames, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: I. A. Merchant and J. G. Hardenbergh.

LLOYD, ANDREW
Tillamook, Ore.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

LOCKWOOD, MULFORD C.
Williamston, Mich.
D.V.M., Michigan State College, 1941.
Vouchers: C. J. Clark and B. J. Killham.

LOILER, MERLE E.
Sidney, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: H. D. Bergman and I. A. Merchant.

LOPP, HOWARD
Laconia, Ind.
D.V.M., Texas A & M College, 1941.
Vouchers: Geo. C. Rich and R. P. Marsteller.

LOVVORN, RAYMOND D.
Wedowee, Ala.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: I. S. McAdory and W. E. Cotton.

MCDANIEL, GEORGE T. JR.
Eastman, Ga.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and F. P. Woolf.

MCGILL, D. A.
Snoqualmie, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

MCKEE, JOHN WILLIAM
Pawnee, Okla.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and T. C. Fitzgerald.

MCKINNEY, GEORGE
Whittier Road, Spencerport, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

MCNARY, DAVID C.
28 Chapman St., Ingram, Pittsburgh, Pa.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and G. A. Williams.

MAGRUDER, KENT
Clatskanie, Ore.
D.V.M., Iowa State College, 1941.
Vouchers: F. E. Walsh and M. J. Johnson.

MARLOWE, PAUL C.
722 Alvord St., Box 255, Kent, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and Donald D. Cordy.

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D.V.M., Iowa State College, 1941.
Vouchers: W. H. Chivers and M. J. Johnson.

MASH, NOAH
462 Dumont Ave., Brooklyn, N. Y.
D.V.M., Texas A & M College, 1941.
Vouchers: Geo. C. Rich and R. P. Marsteller.

MATLOCK, J. C.
209 W. Mulberry, Fort Collins, Colo.
D.V.M., Colorado State College, 1941.
Vouchers: James Farquharson and Harry W. Johnson.

MATTHIS, MERWIN HALE
Wilson, N. Car.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and F. P. Woolf.

MAXWELL, HENRY
271 S. Allen St., Albany, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Peter Olafson.

MEAD, HOWARD N.
1616 Willomore St., Greensboro, N. Car.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: L. E. Starr and R. S. Sugg.

MEISELS, MORTON
1749 49th St., Brooklyn, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and J. N. Frost.

MERRICK, BOYD
1023 Toluca, Alliance, Neb.
D.V.M., Colorado State College, 1941.
Vouchers: Harry W. Johnson and James Farquharson.

MICK, LOUIS W.
Peterboro, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

MICKELSON, CLIFFORD
Eagle Grove, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: H. D. Bergman and E. A. Benbrook.

MIKKELSON, CLAYTON E.
Tempe, Ariz.
D.V.M., Colorado State College, 1941.
Vouchers: K. W. Smith and James Farquharson.

MILBRADT, DUANE L.
Veterinary Hospital, Colorado State College, Fort Collins, Colo.
D.V.M., Colorado State College, 1941.
Vouchers: John C. Williams and James Farquharson.

MILKS, RICHARD V.
113 College Ave., Ithaca, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and H. J. Milks.

MILLAR, JERRY T.
Seabrook, Texas.
D.V.M., Texas A & M College, 1941.
Vouchers: Geo. C. Rich and R. P. Marsteller.

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317 Massachusetts Ave. N.E., Washington, D. C.
D.V.M., Texas A & M College, 1941.
Vouchers: Geo. C. Rich and R. P. Marsteller.

MINER, MERTHYR L.
2713 Lincoln Way, Apt. No. 8, Ames, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: C. H. Covault and Geo. R. Fowler.

MOORMAN, GUY WHITLEY
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D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and F. P. Woolf.

Washington '41

. . . . . and they're 100 per cent AVMA applicants.

MORRILL, DON REX
517 Evergreen, East Lansing, Mich.
D.V.M., Michigan State College, 1941.
Vouchers: E. T. Hallman and B. J. Killham.

NEWTON, HAROLD F.
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D.V.M., Colorado State College, 1941.
Vouchers: James Farquharson and F. X. Gassner.

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D.V.M., Texas A & M College, 1941.
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Rt. 4, Box 112, Tacoma, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and G. A. Williams.

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D.V.M., Indiana Veterinary College, 1914.
Vouchers: J. L. Kixmiller and J. L. Axby.

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2212 32nd St., San Diego, Calif.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

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D.V.M., Iowa State College, 1941.
Vouchers: H. D. Bergman and Geo. R. Fowler.

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D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and H. J. Milks.

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D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and W. J. Gibbons.

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Vouchers: E. E. Wegner and D. R. Cordy.

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D.V.M., Colorado State College, 1941.
Vouchers: John C. Williams and James Farquharson.

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D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and L. E. Starr.

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Vouchers: Harry W. Johnson and James Farquharson.

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Vouchers: H. C. Stephenson and C. E. Hayden.

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Quincy, Fla.
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Vouchers: E. S. Winters and F. P. Woolf.

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D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and G. A. Williams.

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17133 Mack Ave., Detroit, Mich.
D.V.M., Michigan State College, 1935.
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Harper Rd., Kerrville, Texas.
D.V.M., Texas A & M College, 1941.
Vouchers: R. C. Dunn and R. P. Marsteller.

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Vouchers: Harry W. Johnson and James Farquharson.

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115 S. Buckeye St., Kokomo, Ind.
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Vouchers: H. D. Bergman and Russell A. Runnells.

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B.V.Sc., Ontario Veterinary College, 1941.
Vouchers: C. B. Krone and A. G. Misener.

RICE, ALVIN W.
105 Worth St., Ithaca, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

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Bethlehem, Conn.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and A. T. Gilyard.

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General Delivery, Wetmore, Texas.
D.V.M., Texas A & M College, 1941.
Vouchers: R. C. Dunn and R. P. Marsteller.

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D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: Fletcher L. Vinson and W. E. Cotton.

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D.V.M., Alabama Polytechnic Institute, 1941.
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Rt. 1, Box 1154, Modesto, Calif.
D.V.M., Texas A & M College, 1941.
Vouchers: Geo. C. Rich and R. P. Marsteller.

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Rt. 5, Box 907, Tacoma, Wash.
D.V.M., State College of Washington, 1941.
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852 Schenectady Ave., Brooklyn, N. Y.
D.V.M., Texas A & M College, 1941.
Vouchers: R. C. Dunn and R. P. Marsteller.

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286 Pleasant St., Concord, N. H.
D.V.M., Cornell University, 1941.
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423 Clay St., Watertown, N. Y.
D.V.M., Cornell University, 1941.
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403½ Lincolnway, Ames, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: M. J. Johnson and Russell A. Runnells.

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Columbia, S. Car.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and F. P. Woolf.

SNYDER, DONALD
38 Parker Ave., Cortland, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

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Pullman, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

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Box 6, Ephraim, Utah.
D.V.M., Colorado State College, 1941.
Vouchers: James Farquharson and K. W. Smith.

SOURS, CALVIN D.
Marble Rock, Iowa.
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Vouchers: H. D. Bergman and Geo. R. Fowler.

SOVA, PAUL P.
11 John St., Garfield, N. J.
D.V.M., Texas A & M College, 1941.
Vouchers: Geo. C. Rich and R. P. Marsteller.

SPANIER, SEYMOUR
8061 Bay Parkway, Brooklyn, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

SPEARS, C. J.
Dublin, Ga.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and T. C. Fitzgerald.

SPELTZ, JEROME C.
Rollingstone, Minn.
D.V.M., Iowa State College, 1941.
Vouchers: I. A. Merchant and Chas. Murray.

STALHEIM, O. H.
Sherman, S. Dak.
D.V.M., Texas A & M College, 1941.
Vouchers: Geo. C. Rich and R. P. Marsteller.

STANSBURY, WM. M. JR.
Route 2, Box 239, Fort Collins, Colo.
D.V.M., Colorado State College, 1941.
Vouchers: K. W. Smith and John C. Williams.

STEINFELDT, EDWARD F.
30 Belgard St., Rochester, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

STITH, JULIAN D.
Mullins, S. Car.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and F. P. Woolf.

STONG, JAKE
124 Cortland St., Waterloo, Iowa.
D.V.M., Iowa State College, 1941.
Vouchers: C. H. Covault and E. A. Benbrook.

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1202 Maiden Lane, Pullman, Wash.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

STOWE, RICHARD L.
Glenwood, Iowa.
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Vouchers: I. A. Merchant and H. D. Bergman.

STROCK, OTTO M.
Elloree, S. Car.
D.V.M., Alabama Polytechnic Institute, 1941.
Vouchers: E. S. Winters and F. P. Woolf.

SWANSON, LOREN J.
Bonduel, Wis.
D.V.M., Colorado State College, 1941.
Vouchers: K. W. Smith and James Farquharson.

SYLSTRA, ANTHONY W.
Guilford, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

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7 Livingstone Place, New York, N. Y.
D.V.M., Colorado State College, 1941.
Vouchers: John C. Williams and K. W. Smith.

TATE, CHARLES W.
3125 Pershing Drive, El Paso, Texas.
D.V.M., Texas A & M College, 1938.
Vouchers: Harvie R. Ellis and James R. Ketchersid.

THOMAS, JOHN G.
525 Albert Ave., East Lansing, Mich.
D.V.M., Michigan State College, 1941.
Vouchers: B. V. Alfredson and Clyde F. Cairy.

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1407 Jackson St., Pueblo, Colo.
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293 Burgess Pl., Clifton, N. J.
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Vouchers: Geo. C. Rich and R. P. Marsteller.

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Vouchers: K. W. Smith and James Farquharson.

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128 W. 44th St., Bayonne, N. J.
D.V.M., Michigan State College, 1941.
Vouchers: C. F. Clark and B. J. Killham.

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D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and G. A. Williams.

TYLER, LINDY
805 Burlingame Ave., Burlingame, Calif.
D.V.M., State College of Washington, 1941.
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D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and H. J. Milks.

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Vouchers: John C. Williams and James Farquharson.

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49—12 Queens Blvd., Woodside, N. Y.
D.V.M., Michigan State College, 1941.
Vouchers: C. F. Clark and B. J. Killham.

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D.V.M., Iowa State College, 1941.
Vouchers: H. C. Smith and Ludwig Sender.

WALKER, ROBERT H.
Box 631, Livermore, Calif.
D.V.M., State College of Washington, 1941.
Vouchers: E. E. Wegner and J. E. McCoy.

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710 Third St. E., Box 134, Willmar, Minn.
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Vouchers: E. E. Wegner and G. A. Williams.

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Vouchers: E. S. Winters and T. C. Fitzgerald.

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Vouchers: E. S. Winters and T. C. Fitzgerald.

WHITMORE, GEORGE
Whitestown, Ind.
D.V.M., Michigan State College, 1941.
Vouchers: I. Forest Huddleson and L. M. Hutchings.

WIATT, A. T., II.
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WIDNEY, H. S.
501 W. Alabama St., Houston, Texas.
D.V.M., Texas A & M College, 1937.
Vouchers: H. Schmidt and R. D. Turk.

WILLEY, CLAUDE R.
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Vouchers: R. L. Mundhenk and R. P. Marsteller.

WILLIAMSON, JAMES RUSSELL
226 Linden Ave., Ithaca, N. Y.
D.V.M., Cornell University, 1941.
Vouchers: H. C. Stephenson and Wm. Hagan.

WOODRUFF, RAYMOND A.
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D.V.M., Cornell University, 1941.
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YOUNG, W. CLAY JR.
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Vouchers: Lloyd B. Sholl and William F. Riley, Jr.

ZELDNER, JOSEPH
116 Brook St., Hartford, Conn.
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Second Listing

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Ellis, V. A., Holstein, Ont.

Feller, R. G., Walton, Ind.

Fidler, Charles E., Springfield, Ill.

Gallagher, John A., 215 Crescent Ave., Buffalo, N. Y.

Gates, Charles H., Liberty, Ind.

Groves, R. W., c/o Blythe Farm, R. R. No. 3, Fenelon Falls, Ont.

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Jones, Hubert, 111 North St., Mountain Grove, Mo.

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Koerner, John B. Jr., Sykesville, Md.

Marks, Bernard, 409 New Post Office Bldg., Montgomery, Ala.

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Stout, S. W., 434 Mill Rd., Hamilton, Ohio.

Turnbull, John O., Brussels, Ont.

Williams, Edith B., Ontario Veterinary College, Guelph, Ont.

North America's Oldest Veterinary School Celebrates 25th Anniversary of Its Educational Independence

On May 4, 1941, Escuela Nacional de Medicina Veterinaria (National Veterinary School of Mexico) observed the 25th anniversary of its independence as an educational unit of the National University of Mexico. Founded in 1856 and acknowledged as North America's oldest veterinary school, it was affiliated with the University's agricultural division until 1916. The pictures reproduced below were taken at the celebration.

The veterinarians of Mexico City. Seated fifth from the left is Torres Torija, secretary of the National University of Mexico. Sixth from the left is Manuel H. Sarvide, dean of the veterinary school.

A group distinguished in the educational circle of Mexico. Left to right: Pastor Rouaix, former minister of agriculture, who was in charge of the school of agriculture when the veterinary division became an independent unit; Torres Torija, secretary of the University; Lic. De la Cueva, rector of the University; Gustavo Baz, secretary of public welfare; Manuel H. Sarvide, dean of the veterinary school; Ing. Teodoro Flores, dean, Institute of Geology; Enrique Mario Gonzalez, secretary, Institute of Geology; Isaac Ochotejena, dean, Institute of Biology; Ing. Leonardo Pescador, former director of agriculture; [tenth man from left unidentified;] Jose F. Rulfo, secretary of the veterinary school.

U. S. GOVERNMENT

Army Veterinary Service

Regular Army.—Colonel Clifford C. Whitney is relieved from assignment and duty at Fort Brown, Texas, effective on or about May 10, 1941, and assigned to the eighth corps area service command, with station at Camp Bowie, Texas.

Lt. Colonel Chauncey E. Cook is relieved from assignment and duty at Fort Benning, Ga., and will proceed to Charleston, S. Car., and sail on transport scheduled to leave that port on or about May 31, 1941, for duty in the Puerto Rican department.

Major Harvie R. Ellis is relieved from his present assignment and duty at Fort Bliss, Texas, and assigned to the first cavalry division at that station.

Lt. Colonel Kenneth E. Buffin is assigned to duty at the San Francisco Port of Embarkation, Fort Mason, Calif., effective upon completion of his present tour of foreign service in the Hawaiian department.

Veterinary Corps Reserve.—Captain Charles P. Hesse is relieved from assignment and duty at Fort Knox, Ky., effective on or about May 15, 1941, and assigned to the air base at New Orleans.

First Lieut. Philip R. Carter is relieved from assignment and duty at the Army Medical Center, Washington, D. C., and assigned to duty with the United States forces, St. Johns, Newfoundland.

First Lieut. Robert J. Au is relieved from assignment and duty at the Seattle quartermaster depot, Seattle, Wash., effective on or about June 20, 1941, and assigned to the east central remount area, Lexington, Ky.

First Lieut. Raymond R. Houser is relieved from assignment and duty at the east central remount headquarters, Lexington, Ky., effective upon arrival of 1st Lieut. Robert J. Au, and assigned to the Front Royal quartermaster depot, Front Royal, Va.

First Lieut. Garrett H. McNay is relieved from his present assignment and duty at Fort Reno, Okla., effective on or about May 25, 1941, and assigned to troop A, 252d quartermaster squadron, at that station.

Captain Fred M. Burkey is relieved from assignment and duty at Fort Bliss, Texas, and will proceed to Charleston, S. Car., and sail on transport scheduled to leave that port on or about June 20, 1941, for duty in the Puerto Rican department.

First Lieut. William E. Kraus is relieved from assignment and duty at Fort McIntosh, Texas, and will proceed to Charleston, S. Car., and sail on transport scheduled to leave that port on or about June 28, 1941, for duty in the Panama Canal department.

First Lieut. Hendrik Versluis is relieved from assignment and duty at the Army Medical Center, Washington, D. C., effective on or about June 30, 1941, and assigned to headquarters, seventh corps area, Omaha, Neb.

Captain Earl T. Martin is relieved from assignment and duty at Fort Ord, Calif., and will proceed to San Francisco, Calif., and sail on transport scheduled to leave that port on or about July 16, 1941, for duty in the Hawaiian department.

Each of the following named veterinary reserve officers, first lieutenants unless otherwise indicated, is relieved from his present assignment and duty at Fort Bliss, Texas, and assigned to the first cavalry division at that station: Lee R. Chapman, Captain John M. Broadwell, Wendell L. Kanawyer, James R. Ketchersid, Charles W. Tate, Horace R. Willard.

Each of the following named veterinary reserve officers is relieved from assignment and duty at the station indicated, and will proceed to New York, N. Y., and sail on transport scheduled to leave that port on or about June 26, 1941, for duty in the Hawaiian department: Captain Everett B. Miller, Fort Belvoir, Va.; Captain Sol G. Stephan, Fort Thomas, Ky.

Each of the following named veterinary reserve officers, first lieutenants unless otherwise indicated, is relieved from assignment and duty at the station indicated, effective on or about June 20, 1941, and assigned to the Chicago quartermaster depot, Chicago, Ill.: Captain Max H. Carlin, Fort Adams, R. I.; Captain Michael Shipley, Camp Bowie, Texas; Ray M. Batchelder, Fort Benjamin Harrison, Ind.; Harold L. Geick, Fort Riley, Kan.; Frank W. Jordan, Fort Jackson, S. Car.; William S. Monlux, Camp Upton, N. Y.; William J. Sherwood, Camp Shelby, Miss.; John W. Vandeven, Indiantown Gap Military Reservation, Pa.

Announcement is made of the promotion of the following veterinary reserve officers now on active duty:

To Major.—Captain Michael Shipley, May 27.

To Major (Temporary).—Captain Fred Ray Pettys, May 17; Captain Charles Herbert Elliott, May 27.

To Captain.—First Lieuts. William Francis Tierney, April 30; Arthur Reinhardt Thiele, May 8; Harold Leon Decker, May 9; Robert Louis Alkire, May 13; Robert William Cook, May 13; Philip Ray Carter, May 21; Edwin

Stranel Wiseman, May 21.

First Lieut. Clyde Irwin Boyer, Jr., has been ordered to extended active duty by the War Department, effective May 21, 1941, and assigned to Army Medical Center, Washington, D. C.

BAI Transfers

Wallace V. Boggie from Madison, Ind., to Kansas City, Kan., on meat inspection.

Harold J. Classick from Pierre, S. Dak., to Des Moines, Iowa, on tuberculosis eradication.

Horace R. Collins from Jacksonville, Fla., to Leavenworth, Kan., in charge of meat inspection.

James C. Conway from Chicago, Ill., to Fort Branch, Ind., on meat inspection.

Emmanuel F. Coyle from New York, N. Y., to Boston, Mass., on meat inspection.

Ira W. Edwards from Atlanta, Ga., to Montgomery, Ala., on tuberculosis eradication.

David F. Eggers from Richmond, Ind., to Chicago, Ill., on meat inspection.

Murray Feldman from Omaha, Neb., to Wilmington, Del., on meat inspection.

Max Fields from Chicago, Ill., to Boston, Mass., on meat inspection.

Lon E. Foote from Jacksonville, Fla., to Albuquerque, N. Mex., on Bang's disease.

Cloyde L. Guinn from Leavenworth, Kan., to Madison, Ind., in charge of meat inspection.

Arthur F. Hayes from Omaha, Neb., to Albuquerque, N. Mex., on field inspection.

Charles Johnson from South St. Paul, Minn., to West Fargo, N. Dak., on meat inspection.

E. Sheldon Padwee from New York, N. Y., to Newark, N. J., on meat inspection.

John A. Phillips from Little Rock, Ark., to Jackson, Miss., on tuberculosis eradication.

Leonard N. Ritter from Montgomery, Ala., to Jackson, Miss., on Bang's disease.

Harry Schiller from Newark, N. J., to New York, N. Y., on meat inspection.

Retirements.—George H. Bruns, St. Louis, Mo., April 30, 1941; Howard E. Smith, Richmond, Va., April 30, 1941.

Cornerstone Laid for New Medical Service School at Carlisle Barracks

The cornerstone of Hoff Hall at Carlisle Barracks, Pa., was laid June 26 by Major General Jas. C. Magee, surgeon general of the Army. Hoff Hall is the new building that is to house the Medical Field Service School. The building, replacing one built 50 years ago, was named for Colonel John Van Rensselaer Hoff, one of the early medical officers of the Army to recognize the importance of military training for medical officers and enlisted men of the Medical Corps.

Brigadier General Addison D. Davis, who had charge of the ceremony, requested a copy of both of the AVMA periodicals to deposit in the cornerstone. The June issue of the Journal of the American Veterinary Medical Association and the April issue of the American Journal of Veterinary Research were sent for that purpose with the statement that the one represents American veterinary literature since 1877 and that the other marks the beginning of a new era of veterinary-medical progress.

Fort Reno Remount Depot Given Semiannual Inspection

An important event of the mounted service was the semiannual inspection of the remount depot at Fort Reno, Okla., the last of April. Among those present were Colonel R. A. Kelser, director of the veterinary service, Colonel B. C. Bridges of Front Royal, Va., Lt. Colonel Floyd Sager of Fort Robinson, Neb., and the chief of the remount service, Colonel Edwin Hardy. It was a conference of all remount commanders and veterinary officers holding key positions.

AMONG THE STATES

British Columbia

A limited calfhood vaccination program will be undertaken this year in British Columbia. The regulations dealing with this work specify that only veterinarians shall be allowed to administer the vaccine.

According to W. R. Gunn of Victoria, provincial livestock commissioner, the British Columbia department of agriculture is undeviating in its opinion that the best way to guard the livestock industry is to support the veterinary profession.

California

License for Biological Products.—A survey of conditions affecting the potency of serums, vaccines and antitoxins for humans and livestock is being made by the bureau of food and drug inspection of the state agricultural department.

Pointing out that lives depend upon the efficacy of these materials, the department has sent circular letters asking assistance in enforcing the law to all city and county health officers, agricultural colleges, organizations of livestock breeders and cattlemen, agricultural commissioners, livestock inspectors and veterinarians.

The law provides that all serums, vaccines and antitoxins must be licensed by the U. S. Public Health Service, the U. S. Department of Agriculture or the state department of public health.

Emphasis on proper storage is made by the state health department, which warns that smallpox vaccine must be kept below freezing

to be effective, whereas most other vaccines must be kept at temperatures above freezing, but below 41 F.

The animal diseases concerned are anthrax, hog cholera, blackleg, canine distemper and brucellosis.

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Frank D. McKenney, well known in the field of wildlife research, has been employed by the San Diego Zoölogical Society to succeed Chas. R. Schroeder who resigned to accept a position with the Lederle Laboratories in New York. Dr. McKenney, with headquarters at Washington State College, had charge for some years of fur-animal research in the Northwest and Pacific Coast for the U. S. Bureau of Animal Industry and for the Fish and Wildlife Service after that bureau was taken over by the Department of the Interior. Thus, another prominent figure of the veterinary profession is added to the managers of zoölogical gardens.

District of Columbia

Quarterly Meeting.—The second quarterly session of the District of Columbia Veterinary Medical Association was held on April 25 at the Mayflower Hotel in Washington, with 90 veterinarians in attendance.

Lt. Colonel J. F. Crosby of the Veterinary Corps spoke on the present status of the army veterinary service. Following this address a sound movie in color was shown which depicted the formation of the hen's egg.

WM. M. MOHLER, *Resident Sec'y.*

Illinois

Mississippi Valley Association.—The Mississippi Valley Veterinary Medical Association's annual clinic was held in Galesburg, May 22.

This progressive sectional society took a step forward several years in ruling that no animal may be submitted to any type of operation at its clinics without first being given a general anesthetic.

C. C. HASTINGS, *Secretary.*

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Interprofessional Councils.—The movement to unite all of the professional groups of communities, started by Earle Series, dean of the pharmacy school at the University of Illinois, has taken practical form in several states (New Jersey, South Dakota, Indiana, Iowa and Illinois). At the first of these get-together meetings, held at Rock Island, the participants were the local medical, dental, pharmaceutical, bar, veterinary, morticians' and nurses' societies of the western part of the state.

The object is to bring under the direction of one head all of the public administration organizations whose aggregate activities largely control national welfare.

Campbell Called to Active Duty.—Lt. Colonel D. M. Campbell of Chicago, prominent publisher of veterinary literature, has been assigned to active duty with station at El Paso, Texas, where he will serve as the commanding officer of the 30th general veterinary hospital.

Colonel Campbell has devoted over 20 years to aiding in the development of the veterinary reserve service and he won promotion to his rank by qualifying through study and training. Much of the interest in the veterinary reserves maintained through the years of peace since the war of the teens decade was due to his urge to carry on. His first assignments were as commanding officer of the fourth general veterinary hospital of the sixth corps area commanded by Colonel Merillat (retired) and as division veterinarian of the 65th cavalry division. It is through these almost unheeded resources throughout the country that the formation of veterinary reserves in the present emergency was made easier.

Indiana

The Sixth District Veterinary Medical Association held a regular meeting at Lebanon, June 11. C. R. Donham, chief veterinarian of Purdue University, was the principal speaker. The coming AVMA meeting at Indianapolis was discussed.

Iowa

Cedar Valley Association.—Sixty veterinarians and ladies attended the ladies' night dinner of the Cedar Valley Veterinary Medical Association held at Black's tearoom in Waterloo, June 9. Kenneth L. Ritchie of West Union and W. A. Moeller of Waterloo were in charge of arrangements.

Officers were elected for the coming year as follows: C. L. Moles of Dike, president; R. B. Helming of Cresco, vice-president; and C. B. Strain of Dunkerton, secretary-treasurer.

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Iowa Veterinarians "Building Up".—An insight into the morale and well being of Iowa practitioners is shown by the number of new homes and offices they have built recently and occupied. Secretary E. S. Dickey of the Advisory Committee of the Eastern Iowa association announces the following in this category: I. W. Moranville of Durant, M. W. Osborn of Independence, W. C. Vollstedt of Dixon, H. N. Strader of Marion and E. C. Ritter of Sumner.

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Giffee Praised.—In a letter to John R. Mohler dated June 8, E. R. Elson, secretary of the Eastern Iowa association, in drawing attention to the work of this organization's Advisory Committee through the distribution of a bulletin on infectious diseases compliments the U. S. Bureau of Animal Industry for the excellent

coöperation received from Joe W. Giffee, the Bureau's field man in that region. Quoting: "The Association is fortunate in having the best coöperation from federal veterinarians. We feel that Dr. Giffee's many contacts, efficient work and high standing with the practitioners have been beneficial in this essential part of national defense."

The letter points out the benefits derived by farmers from the publicity given to the presence of infectious diseases by the press of that section of the country, particularly hog cholera. The publicity teaches swine breeders to suspect cholera at once and not abide by the "diagnosis of neighborhood wiseacres and wishful thinking." In a recent release Dr. Giffee contended that hog cholera causes more financial losses than all other livestock diseases combined.

Kansas

The Kansas State Board of Veterinary Examiners, in special session at Manhattan, May 21, granted certificates to practice veterinary surgery and dentistry to 54 veterinarians, the majority of whom are members of the 1941 graduating class.

J. A. Bogue of Wichita was recently appointed a member of the Board to succeed J. I. Kirkpatrick of Sedgwick. Kent R. Dudley of Iola is president and Thos. P. Crispell is secretary.

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Director Ralph E. Ammon of the state department of agriculture has invited ten veterinarians to serve as an advisory committee. The personnel of the new committee comprises the presidents of the four local associations, the president of the state association, the three members of the examining board, the chief of the federal service of the state and the head of the department of veterinary science at the college of agriculture.

Maine

Volume 3, No. 2 of the *Quarterly News Letter* of the Maine association is a newsy mimeogram of the veterinary affairs of the state. It is the association's release edited by Secretary J. F. Witter of Orono. It describes the meeting to be held on July 9 at the Walker homestead in Casco, in serio-comedy fashion announcing croquet, quoits (he calls it horseshoes), boating, softball (U. of Pa. vs. "Riff-Raff"), banquet (chicken dinner at one-twenty-five), entertainment for the ladies an' everything.

President-Elect H. W. Jakeman of the national association is announced as the main speaker at the business session. Drs. Moore and Libby are to give brief reports on brucellosis, and Dr. Baird will speak on blood magnesium in milk fever.

The "Letter" announces the progress being made in bovine brucellosis work, the founding of a "New Bang's Laboratory," where extra technicians are being employed to handle the increase in that work, and the successful revision of the veterinary practice act.

The events of the April meeting at Orono are reported.

Demonstrations of the restraint of large animals and the use of the emasculatome were made by Dr. Potter, assisted by Drs. Richardson, Miller and others. Drs. Coombs, Witter and Potter showed how cows should be dehorned under nerve-block anesthesia and proper hemostasia—fee what? Merrill demonstrated suturing. "Larcom spilled acid all over the place demonstrating numerous technics in urine analysis" and Dutton operated on a cat (umbilical hernia) that "has since recovered" to become the ratter of the University poultry farm. Quoting: "Dr. Neal (KC '17) gave a much advertised paper on the Dog Food Testing Program, prepared by the AVMA; Dr. Fine (UP '35) was elected to the membership, and Dr. Potter (OSU '06), was appointed delegate to the AVMA [House of Representatives]."

The issue contains a human-interest sketch of the life of C. F. Dwinal (Amer. '93), famous owner and veterinarian of light harness horses in New England through many years, when folks worked for less but always had money in their pockets.

Quarterly News Letter is a lively publication —a pattern.

Minnesota

Significant Court Decision.—A decision of considerable importance to veterinary licensure boards was handed down by the Supreme court of Minnesota when it upheld the action of the state board of veterinary examiners in revoking the license of E. P. Walker of Willmar for authorizing a layman, G. A. Johnson, to conduct a branch for him at Melrose. The charge was "gross unprofessional misconduct."

Missouri

The *Missouri Veterinary Bulletin*, official organ of the state association, announced on the front page of its spring issue two big conventions of 1941: the 50th annual summer meeting of the Missouri Veterinary Medical Association at the Hotel Connor in Joplin, July 7-8, and the "World's Largest Veterinary Convention" at Indianapolis, Ind., August 11-15. A representative number with the "Show Me" slogan will be seen at both of these meetings.

J. L. WELLS, *Secretary.*

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J. V. Moore was elected president of the Southeast Missouri association at a meeting

held at Sikeston in May. F. L. Cissle of Perryville was chosen vice-president and F. C. Davis of Kennett, secretary-treasurer.

Nebraska

N. L. Ditman of Winside was elected president of the Northeastern Nebraska association at the annual meeting held in Stanton in March. F. O. Lundberg of Wausa was reëlected secretary-treasurer.

New York

Hudson Valley Association.—Dean Hagan of the New York State Veterinary College addressed the May meeting of the Hudson Valley association at Catskill on "The Nature of Viruses and Virus Diseases," and Director E. T. Faulder of the state bureau of animal industry spoke on the new plans for putting calfhood vaccination against brucellosis into operation. L. T. Parker's new small animal hospital was the scene of one of the sessions.

The ladies were entertained at the Parker home by Mrs. Parker and also by a boat ride on the Hudson. An attendance of 70 was reported.

North Carolina

Thirteen North Carolina veterinarians have been called into military service and a number of others expect to be called in the near future. Several graduates have located in the state and they may help to avoid a serious shortage of veterinarians in the state.

The 1941 act regulating public livestock markets becomes effective July 1. This law was enacted chiefly to prevent and control livestock diseases which heretofore have been spread widely through sales of animals from these markets. Testing and vaccination at the markets will be done by local veterinarians under the supervision of the state veterinarian.

The recent amendments to the state rabies law have put a large part of the vaccination work in the hands of local veterinarians. Reports indicate that a number of practitioners who were not previously connected with vaccination campaigns are carrying on the work satisfactorily.

WM. MOORE.

Ohio

At the March meeting of the Northwestern Ohio association R. S. Smiley of Tiffin was elected president; Clark Weaver of Toledo, vice-president; and C. W. Witty of Elmore, secretary-treasurer.

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The Annual Veterinary Conference.—The conference for veterinarians given by the state university was the 14th of these annual events. The dates were June 18-20. The conference was divided into six sessions, morning and afternoon of each day. The chairmen of the sessions were, respectively: O. V. Brumley, W. R. Hobbs, A. F. Schalk, W. R. Krill, W. F. Guard and R. E. Rebrassier, members of the veterinary faculty.

Speakers from states other than Ohio who participated in the program were: E. K. Sales, Michigan; E. J. Frick, Kansas; B. W. Fairbanks, Illinois; W. L. Boyd, Minnesota; C. R. Donham, Indiana; B. J. Errington, Kentucky; H. E. Biester, Iowa; Colonel R. A. Kelser, U. S. Army; and N. M. Nelson, Michigan.

The intrastate participants were: Howard L. Bevis, President, The Ohio State University; A. R. Theobald, Cincinnati; N. S. Carver, Youngstown; B. F. Edgington, Reynoldsville; A. J. De Fosset, U. S. Bureau of Animal Industry, Columbus; D. G. Bond, Department of Agriculture, Columbus; E. W. Roberts, Department of Agriculture, Reynoldsville; F. A. Zimmer, The Corn States Serum Co., Columbus; and Nelson Dysart, M.D., Director, Health Department, Columbus.

Of the college faculty not named above were Drs. Ashcraft, Goss, Grossman, Helwig, Kingman, Knapp, Marsh, Mauger, Nichols, Sutton and Westerfield.

The subjects and the reporters (in parentheses) were: Ticks and Their Importance in Veterinary Practice (Koutz), Diseases of the Ear (Sales), Tonsillitis in Small Animals (Carver), Diseases of the Eye (Sales), Canine Nutrition (Fairbanks), Dentistry (Frick), Some Anorectal Conditions (Theobald), State Diagnostic Service Available to Practitioners (Roberts), The Veterinarian's Place in Public Health Work (Dysart), Sterility in Cattle (Boyd), Swine Nutrition (Fairbanks), Equine Ophthalmology (Errington), Listerella Infection in Swine (Biester), The Animal Service of the Veterinary Corps (Kelser), Diseases of Sheep (Boyd), Meningeal and Brain Clinical Entities (Biester), Army Inspection of Food of Animal Origin (Kelser), Symptoms and Postmortem Changes in Avian Leucosis Complex (Fowl Paralysis)—colored slides (Nelson). The Maryland Farms presented Saddle Horse Interests in Tennessee, courtesy of W. F. Ward, Nashville, Tenn.

South Carolina

According to W. A. Barnette, AVMA resident secretary for South Carolina, between 15 and 20 practitioners of this state will attend the Indianapolis session.

Texas

The passage of a bill removing the ban on horse racing is being energetically urged by veterinarians throughout the state. Racing under strict regulations and local option is be-

ing recommended. President R. T. Dickerson of the state association is one of the advocates of favorable legislation.

Virginia

The state's animal-disease-control program is being threatened by the induction of veterinarians into the military service, according to published reports coming from State Veterinarian H. C. Givens.

Washington

Inland Empire Association.—The Inland Empire Veterinary Medical Association held its annual meeting in Pullman, May 3.

At the conclusion of the literary program, the members of the state college student chapter of the national association joined the Inland Empire group at an informal dinner at the Washington Hotel. F. X. Gassner of Colorado State College, first vice-president of Alpha Psi, gave a brief address, after which Alpha Psi tapped its pledges for the year. This affair, one of the major social events of the college year, was attended by about 330 persons.

E. E. WEGNER.

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The Washington State Veterinary Medical Association has for many years tried to stimulate, through resolution, a closer affiliation among the different state associations and the national body. Action along this line was started last year by the AVMA and it is expected that the Washington delegate will have some further proposals to submit in connection therewith.

R. A. BUTTON, *Resident Sec'y.*

COMMENCEMENTS

Alabama Polytechnic Institute

At the 69th annual commencement exercises of Alabama Polytechnic Institute, the following candidates were presented for the degree of Doctor of Veterinary Medicine by R. S. Sugg, dean of the School of Veterinary Medicine:

Avery, Marion R., Jr.
Bassham, Hugh A.
Bateman, Joseph C.
Berry, Sidney A., Jr.
Birn, Martin
Blunchi, John, Jr.
Boyette, Edward F.
Brown, Thomas E.
Clanton, George H.
Dean, Charles R.
Dickinson, Robert A.
Dickinson, Robert L.
Edwards, Bennie S.
Evans, Calvin W.
Evans, John W., Jr.
Faughn, James A.
Ferrell, Edwin H.
Haire, Wilbur C.
Hare, Hobart
Haworth, Sylvan D.
Jerome, Newell G.
Jordan, Warren A., Jr.
Kinsey, Bill H.
Lewallen, George L.
Long, William M.
Lovvorn, Raymond D.
MacEachern, Gordan
McDaniel, George T.
McKee, John W.
Matthis, Merwin H.
Mead, Howard N.
Melton, George A.
Moore, John J.
Moorman, Guy W.
Parker, Hankins F.
Petty, Walter V.
Piggott, John B.
Porter, Lyman E.
Sause, Milton P.
Schell, Fred G.
Smith, George K.
Spears, Cecil J.
Sprinkle, David G.
Stith, Juliam DuB.
Strock, Otto M.
Thompson, William M.
Warren, Frederick F.
Wells, Vernon L.
Whitman, James P., Jr.
Wiatt, Alexander T. II
Young, Henry G.

Colorado State College

The commencement exercises of Colorado State College were held on May 26. In the absence of President Roy M. Green, who received an honorary doctor's degree at Kansas State College on the same day, Vice-President and Dean of Veterinary Medicine I. E. Newsom presided. The commencement address was delivered by Charles E. Friley, president of Iowa State College. The following men were granted the degree of Doctor of Veterinary Medicine:

Ackermann, Leon F.
Beach, Melvin K.
Beasley, John V., Jr.
Bennett, John T.
Bishop, Vincil C.
Blake, Walter P.
Bolton, Glen S.
Brisnehan, Edmund R.
Candlin, Paul T.
Christensen, James M.
Cummings, Fred'k C.
Dakin, William V.
Fletcher, John C.
Furgeson, Harry E.
Heisel, Allen
Hird, Joseph J.
Matlock, J. Cecil
Merrick, Boyd B.
Mikkelson, Clayton E.
Milbradt, Duane L.
Newton, Harold F.
Phillips, Lee R.
Pitcher, Jack R.
Ramsay, Donald D.
Sorensen, Harris
Stansbury, Wm. M., Jr.
Swanson, Loren J.
Tarr, Lewis M.
Thornburg, L. Dail
Tornow, Winston H.
Vagneur, James D.
Young, Clyde W.

Cornell University

Dean W. A. Hagan of the New York State Veterinary College presented the following candidates for the degree of Doctor of Veterinary Medicine at the 73rd annual commencement exercises of Cornell University, June 16:

Ackerman, Anthony J.
Bendersky, Samuel
Britton, John W.
Bryan, Donald I.
Charles, Arthur S.
Connor, Alexander
Dean, Donald J.
Earl, Alfred E.
Everly, William P.
Fales, Roger R.
Ferris, Joseph
Fobian, Vernon C.
Harmon, Karl S.
Helsel, Harry J.
Howard, Nathan Z.
Linden, Benjamin
McKinney, George V.
Maxwell, Henry
Meisels, Morton
Mick, Louis W.
Milks, Richard V.
Papish, Philip G.
Peppe, Vincent J.
Polansky, Henry
Rice, Alvin W.
Risley, Henry B.
Sheridan, Gerald H.
Simmons, Eric W.
Siver, Dougal H.
Snyder, Leon H.
Spanier, Seymour E.
Steinfeldt, Edward
Sylstra, Anthony W.
Tucker, Edgar W.
Williamson, James R.
Udall, Robert H.
Woodruff, Raymond A.
Wright, Frederick O.

Iowa State College

The annual commencement exercises of Iowa State College were held on June 8. Dean Charles Murray presented the following candidates for the degree of Doctor of Veterinary Medicine:

Anderson, Collins W.
Arnold, John P.
Ball, Dale D.
Bartley, Frank E.
Beardmore, Howard F.
Beemer, Melvin R.
Bradt, Raymond K.
Campbell, Robert L.
Carey, John W.
Cook, Earl L.
Coons, Max C.
Cornwell, Gerald W.
Cotter, William D.
Deaver, John W.
Derrer, Reynold C.
Dodds, Robert C.
Dunne, Howard W.
Eder, E. Paul
Eakin, Carrol E.
Failing, Frank W.
Fehl, Henry G.
Forland, Lawrence M.
Gaffin, Arvid H.
Gilmore, James W.
Hayden, Wm. J.
Helvig, Raymond J.
Hertich, Charles D.
Houston, Montgom'y L.
Jensen, Harlan E.
Johnson, Clarence E.
Jones, Max W.
Kinney, Norman K.
Knoop, Francis W.
Kufrin, R. Steven
Kurtz, Wheeler
Kyner, Roy E., Jr.
Lightcap, George C.
Lindenstruth, Robt. W.
Linn, Samuel D.
Llewellyn, Lew O.
Loiler, Merle E.
Magruder, Richard K.
Martens, Orville G.
Mickelson, Clifford J.
Miner, Merthyr L.
Nelson, William Q.
Orum, Arthur M.
Pittman, Arthur B.
Ponder, Alvin E.
Price, Roy B.
Read, Raymond D.
Smith, Corwin L.
Sours, Calvin D.
Speltz, Jerome C.
Stong, Jake
Stowe, Richard L.
Tietze, Albert L., Jr.
Timms, Walter H.
Waggoner, Nathaniel R.
Welch, James L.

Harlan E. Jensen was the honor student in veterinary medicine, winning the George Judisch award. The winners of the G. G. Graham awards, which are based upon the records of the students' work in clinical practice, are John W. Carey, first prize, and Howard F. Beardmore, second prize.

Kansas State College

At the 78th annual commencement of Kansas State College on May 26, Dean R. R. Dykstra presented the following candidates for the degree of Doctor of Veterinary Medicine:

Armstrong, Fern. E.
Armstrong, George R.
Atkinson, Leroy N.
Bain, Lawrence R.
Betts, James G.
Bowerman, Wm. D.
Brower, Arthur W.
Bruce, K. L.
Busby, Bernard
Carl, Gilbert W.
Chambers, Edward E.
Clark, Robert H.
Collins, Clark C.
Davis, Shirley LeR.
Dedrick, Warren J.
Duncan, Glenn E.
Eberhart, George W.
Erickson, John E.
Eyestone, Willard H.
Flipse, Frank A.
Gish, John G.
Halver, Glenn C.
Howell, Gordon C.
Howell, Herbert W.
Immenschuh, Robt. D.
Jones, Chas. F.
Kadets, Martin
Karnes, Jacob L.
Keller, Edward J.
Kelley, Virgil R.
Kennedy, Chas. A., Jr.
Koger, Richard B.
Laird, Glover W.
Lemen, Clifford A.
Lichlyter, Frank E.
McMahan, Virgil K.
McPeek, Raymond C.
Manley, David O.
Medaris, Jacob L.
Meriweather, Herbert
Mundell, Earl L.
Newhart, Charles C.
Paulsen, Cecil L.
Payne, Loyal C.
Pierce, LeRoy A.
Port, Rodney I.
Prather, Elwin R.
Reed, Myron Dale
Renfrow, Charles D.
Schendel, Samuel A.
Smith, Charles C.
Smith, Charles Lewis
Stanzel, Raymond W.
Stitt, Marvin D.
Swart, Richard W.
Thompson, Clarence H., Jr.
Toynton, Earl C.
Trostle, W. Gerald
Vanderbilt, Wm. H.
Wendt, Delbert O.
Whitney, Don O.

Michigan State College

At the 83rd annual commencement of Michigan State College, the following students, presented by Dean Ward Giltner, received the degree of Doctor of Veterinary Medicine:

*Ascher, Margaret
Barry, Arthur A.
Barschak, Richard M.
Belding, Sherl
Chazey, Edward P.
Clark, Thomas W.
Corbett, Alan C.
*Darby, Charles S.
Dedolph, George J.
Dole, Joel R.
Eads, Floyd E.
Fireoved, DeLoss W.
Glucksman, Norman J.
Graves, Walter L.
Greene, James G.
Greiner, Norma L.
Hammerberg, Karl B.
Hupp, D. Lynn
Jackson, Wesley E.
Kelly, Stephen R.
Kendall, Donald A.
Kloker, Paul F.
Klooster, Clarence J.
Kortenber, John J.
Lannen, Richard P.
Lee, Willard L.
Lockwood, Mulford
Loomis, Ladd N.
Lustig, Seymour
May, Wallace G.
†Morrill, Don R.
O'Brien, Donal F.
Pollock, Samuel
Rankin, Lloyd G.
*Roberts, Irving M.
Schaub, John A.
Sherber, Murray
*Siegle, Harrison
Spencer, Adelbert J.
Steele, James H.
Strong, Warren S.
Thomas, John G.
Van Tilborg, Evan J.
Vine, Leo
Wagaman, Paul H.
Weinland, Kanneth M.
Weldy, Maurice L.
Whitmore, George E.
Young, William C.
Zeldner, Joseph

The senior prize of $50, offered by the Michigan State Veterinary Medical Association, was awarded to Don R. Morrill, who also won the Sayer prize, offered to the student doing the most commendable work in bacteriology. Raymond Beebe was awarded the veterinary faculty prize, given annually to the outstanding second-year veterinary student.

University of Montreal

École de Médecine Vétérinaire de la Province de Québec, Université de Montréal, awarded the degree of Doctor of Veterinary Medicine

*With honor.
†With high honor.

to twelve candidates at the commencement exercises held in May, according to an announcement received from Father Norbert, dean.

Graduated with highest honors were Paul Boulanger and Geo. Benoit Galarneau, who received, respectively, the silver medal of the lieutenant-governor of Quebec and the bronze medal. Martin Trépanier was graduated with great distinction.

Doctors graduated with honors were Jean-Guy Lafortune, Edmour Légaré Chs. Ed. Beaudry, Albert Lefebvre, Camille Léveillé and Louis-Emile Gosselin.

Gonzague Gélinas, Maurice Payette and Jos. Ed. Chartier also were awarded degrees.

The Ohio State University

At the 64th annual commencement exercises of The Ohio State University, June 16, Dean O. V. Brumley presented the following candidates for the degree of Doctor of Veterinary Medicine:

Amerine, Ivan E.
Beamer, Paul D.
Berthold, Norman R.
Boyd, Wayne W.
Burrell, John V.
Carpenter, Paul R.
Chambers, Walter M.
Chase, Irving N.
Collier, John R.
Cooper, Stanley R.
Davison, Roy H.
Dinsmore, Jack R.
Douglass, Frank W.
Dunlap, Floyd P.
Gardner, Paul
Gardner, Richard S.
Gluhm, Frank N.
Gray, Hollis A.
Gutridge, Frederick D.
Habel, Robert E.
Headley, Ralph E.
Hedeman, Lincoln P.
Heinrich, Cyril L.
Hempy, Jack H.
Herring, Raymond L.
Hilsheimer, Wilbert G.
Hinchman, Lowell W.
Jones, Lowell M.
Jordan, Justin E.
Klein, Ben
Kline, Dale S.
Knappenberger, Robt. E.
Kottenbrock, Amos F.
Latier, Robert E.
Leed, Robert H.
Lusk, David E.
Menges, Robert W.
Mitchell, Francis S.
Pinfold, Russel W.
Price, Lawrence W.
Puppel, John D.
Rasi, Laddie B.
Richards, Jacob P., Jr.
Ross, Charles P.
Simione, John R.
Sims, Jacob B.
Sluss, Robert E.
Smith, Robert F.
Stauffer, Douglas R.
Stewart, Marvin C.
Swart, Phillip B.
Terrill, Lloyd H.
Wallace, Paul H.
Wolfe, Gerald J.

Ontario Veterinary College

The following candidates received the degree of Bachelor of Veterinary Science at the convocation of the University of Toronto, May 9, according to an announcement received from C. D. McGilvray, principal of the Ontario Veterinary College:

Anderson, H. T.
Anderson, J. L. S.
Barker, C. A. V.
Barnum, D. A.
Beattie, J. H.
Bigland, C. H.
Blum, F. E.
Browne, D. J.
Bryson, H. L.
Butterwick, D. B.
Button, W. C. S.
Cady, J. H.
Campbell, K. C.
Carnegie, G. C.
Chamberlayne, E. C.
Clark, J. S.
Coghlin, C. L.
Coleman, L. G.
Colgate, R. F.
Collins, H. C.
Coxon, E. N.
Donovan, J. F.
Eddy, E. C.
Elliott, G. S.
Elliott, J. A.
Ellis, V. A.
Gallagher, J. A.
Groves, R. W.
Hanlon, P. F.
Jones, G. H.
Kirk, R. J.
LeGrow, W. R.
Lougheed, V. H.
McPhee, J. N.
Marshall, R. J.
Maude, S. H.
Moffat, G. C.
Mollison, L. G.
Mount, H. F.
Munro, D. A.
Murray, R. B.
Parkhill, W. L.
Pickell, A. D.
Rainey, W. J.
Reid, D. C.
Reid, V. H.
Rivington, N. W.
Robinson, J. E.
Robson, G. F.
Rushton, H.
Scott, J. H. G.
Storry, W. J.
Turnbull, J. O.
Williams, E. B. (Miss)
Woolsey, I. J.
Woolsey, L. D.

In order to complete the requirements for a degree, H. F. Gibbs is required to pass a supplemental examination in surgery, and K. M. MacLennan is required to pass a supplemental examination in diseases of the horse.

Prizes were awarded to members of the graduating class as follows:

Honor Standing

Gold medal for highest aggregate standing —C. V. Barker. Second and third prizes were awarded to D. A. Barnum and C. L. Coghlin.

Andrew Smith Memorial Medal
C. L. Coghlin

Helen Duncan McGilvray Prize
Miss E. B. Williams

Bacteriology Prize
D. A. Barnum

Canadian Army Veterinary Corps Prize
C. H. Bigland

Milk Hygiene Prize
C. V. Barker

University of Pennsylvania

At the 185th annual commencement of the University of Pennsylvania, held on June 11, George A. Dick, dean of the School of Veterinary Medicine, presented the following candidates for the degree of Doctor of Veterinary Medicine:

Allen, Clifford A.
Babe, Carl R.
Baily, William H.
Barlow, Ruth M.
Barton, Robert A.
Beatty, Millard S.
Bond, William P.
Boyens, Raymond W.
Brown, Thomas W.
Burkhart, Robert L.
Churchill, Edwin A.
Collins, Elizabeth J.
Dionne, Bertrand B.
Edwards, Myles J.
Ellmers, Gordon R.
Ely, John B.
Fouse, Gerald H.
Gates, Glenn D.
Grim, Burnell H.
Jaquette, Daniel S.
Johnson Peter V.
Labold, Jack J.

Leaming, Joseph D.
Leighton, Robert L.
Lerch, Robert J.
MacKenzie, Eugene R.
McEwan, Alan F.
Maloney, Roger J.
Martin, Kenneth H.
Metzger, Philip P.
Mullen, Francis E.
Nichols, Robert W.
O'Connor, James T., Jr.
Phillips, John Q.
Rachlin, Herbert S.
Roney, Harry A.
Rothman, Irwin
Savage, William C. G.
Schnautz, John O.
Showalter, Charles L.
Shrader, John K.
Swail, Clark E., Jr.
Wiley, James R.
Wolfe, Larry J.

Agricultural and Mechanical College of Texas

The 65th annual commencement of the Agricultural and Mechanical College of Texas was held on June 6. R. P. Marsteller, dean of the School of Veterinary Medicine, presented the following candidates for the degree of Doctor of Veterinary Medicine:

Adams, Garland B.
Allen, James W.
Appleby, Aaron
Banks, William C.
Barron, Horace T.
Baumgarten, Arthur M.
Bernkrant, Alfred I.
Bernkrant, Louis
Bogen, Sidney
Borer, Maurice H.
Burrus, Marvin M.
Carter, Richard W.
Carver, Hubert E.
Castleberry, Merida W.
Castro, Fred E.
Curts, Kephart M.
Davidson, Haughton C.
Davis, Richard H., Jr.
Demke, Donald D.
Droleskey, Edward A.
Einhorn, Ralph W.
Faust, Herbert R.
Fortson, Thomas E.
Franklin, Ted E.
Garrett, Raymond G.
Greenlee, Homer H.
Gutknecht, Albert J.
Harris, Tom D., Jr.
Hayward, John G.
Helfand, Max
Horne, Charles H.
Hugins, James D.
Ingram, Howard E.
Inman, Marvin L.
Kirby, T. C.
Kirkham, Wayne W.
Larson, Kenneth E.
Larson, Walter W.
Levy, George
Linn, Adolph L.
Logie, Abby J.
Lopp, Howard F.
Marcia, Alfred F.
Mark, Irwin C.
Mash, Noah
Millar, Jerry T.
Miller, Howell D.
Mostyn, Henry B.
Nathan, William R.
Nickerson, Warren J.
Pessin, Simon M.
Porter, W. Norris
Radeleff, Rudolph D.
Rehkemper, Jack A.
Romo, Ralph R.
Saunders, J. R., Jr.
Schmidt, Hilton A., Jr.
Schmidt, Harold J.
Schulberg, Howard L.
Simels, Norman G.
Sova, Paul Peter
Stalheim, Ole H. V.
Stallworth, G. Driskill
Stein, Perry D.
Tomayko, Val A.
Toro, Enrique R., Jr.
Tucker, Boyd B., Jr.
Walker, J. Woodrow
Watkins, Robert R.
Willey, Claude R.
Willmore, James H.
Zahn, Charles W.

State College of Washington

The 45th annual commencement of the State College of Washington was held June 9. E. E. Wegner, dean of the College of Veterinary Medicine, presented the following candidates for the degree of Doctor of Veterinary Medicine:

Abinanti, Francis R.
Bjork, Clifford A.
Boero, Arthur J.
Bowers, Frederick U.
Bradbury, Ray H.
Burns, Leslie
Bynum, Robert N.
Carter, Leland B.
Clarke, Don W.
Conner, Gabel H.
DeMattei, John D.
Donnelly, Robert N.
Forsythe, Helen L.
Garlick, Norman L.
Glaisyer, R. Allington
Groves, Newell P.
Herr, Frank M., Jr.
Hopkins, Glenn D.
Humphrey, Weden P.
Jones, Dallen H.
Kraft, James C.
Lewis, Robert F.
Lindenmayer, John E.
Lloyd, Andrew D.
McGill, Delbert A.
McNary, David C.
Marlow, Paul C.
Nordlund, Cecil A.
O'Connell, James P.
Petersen, William M.
Powers, Percy A.
Septon, Leif A.
Snyder, Leo B.
Storey, Raymond C.
Thorning, William M.
Tuomy, George F.
Tyler, Marin Lindy
Walker, Robert H.
Wanner, Kasper W.
Worcester, Wm. W., Jr.

Robert Thornfeldt, a sophomore veterinary student, was awarded the Josie Comstock Shadle scholarship. Lavon Koger, a junior student, was awarded the Ella Letterman-Lanning fellowship. Ben Kadaner, also a junior student, was granted one of the Julius Galland undergraduate scholarships.

June Graduates Get Complimentary 12th International Congress Report

Through the courtesy of John R. Mohler, member of the Permanent Committee of the International Veterinary Congress, each graduating senior in the ten recognized veterinary colleges of the United States will receive a complimentary copy of the proceedings (three volumes) of the Twelfth International Veterinary Congress, held in New York City in 1934.

This is the second year these documents, valuable to every veterinarian's library, have been so distributed to graduating students. The cost of packaging and mailing is borne by the AVMA.

Members of the 1941 classes of the two Canadian veterinary colleges who desire to secure this report are invited to write to Dr. Mohler, U. S. Bureau of Animal Industry, Washington, D. C.

A symposium on "Respiratory Enzymes and the Biological Action of Vitamins" has been arranged jointly by the University of Wisconsin and University of Chicago, September 11 to 17 inclusive. The sessions on respiratory enzymes will be held in Wisconsin, September 11-13 and the ones on vitamins at Chicago, on September 15-17. Names on the program familiar to readers of veterinary journals are Norman Jolliffe and C. A. Elvehjem who will speak on the biological action of vitamins at the Chicago sessions.

COMING MEETINGS

Small Animal Hospital Association. Los Angeles, Calif. July 1, 1941. W. K. Riddell, secretary, 3233 W. Florence Ave., Los Angeles, Calif.

New York State Veterinary Medical Society. Ithaca, N. Y. July 1-3, 1941. J. J. Regan, secretary, c/o General Dairy Service Corp., Utica, N. Y.

Dallas-Fort Worth Veterinary Medical Society. Dallas, Texas. July 3, 1941. Frank Brundrett, secretary, 1809 Atwood, Route 2, Dallas, Texas.

Missouri Veterinary Medical Association. Hotel Connor, Joplin, Mo. July 7-8, 1941. J. L. Wells, secretary, 1817 Holmes St., Kansas City, Mo.

Montana Veterinary Medical Association. Helena, Mont. July 7-8, 1941. E. A. Tunnicliff, secretary, Montana Veterinary Research Laboratory, Bozeman, Mont.

Pacific North-West Veterinary Medical Association. Hotel Vancouver, Vancouver, B. C. July 7-9, 1941. W. Graham Gillam, convention secretary, 2062 E. 33rd Ave., Vancouver, B. C.

Kentucky Veterinary Medical Association. Brown Hotel, Louisville, Ky. July 9-10, 1941. F. H. Riester, secretary, Buechel, Ky.

Virginia State Veterinary Medical Association. The Virginian Hotel, Lynchburg, Va. July 9-10, 1941. A. J. Sipos, secretary, 1102 State Office Bldg., Richmond, Va.

New Jersey, The Veterinary Medical Association of. Berkeley-Carteret Hotel, Asbury Park, N. J. July 10-11, 1941. J. R. Porteus, secretary, P. O. Box 938, Trenton, N. J.

Alabama Veterinary Medical Association. Mobile, Ala. July 11-12, 1941. I. S. McAdory, secretary, Alabama Polytechnic Institute, Auburn, Ala.

Ak-Sar-Ben Veterinary Medical Association. Fontenelle Hotel, Omaha, Neb. July 14, 1941. J. D. Ray, secretary, 1124 Harney St., Omaha, Neb.

Southern California Veterinary Medical Association. Chamber of Commerce Bldg., Los Angeles, Calif. July 16, 1941. Charles Eastman, secretary, 725 S. Vancouver Ave., Los Angeles, Calif.

Georgia State Veterinary Association. Tosco Hotel, Thomasville, Ga. July 16-17, 1941. J. E. Severin, secretary, 357 Edgewood Ave., S. E., Atlanta, Ga.

Kansas City Veterinary Medical Association. Kansas City, Mo. July 21, 1941. Glen L. Dunlap, secretary, 800 Woodswether Road, Kansas City, Mo.

San Diego County Veterinary Medical Association. Zoölogical Research Bldg., Balboa Park, San Diego, Calif. July 21, 1941. Paul D. DeLay, secretary, State Poultry Pathological Laboratory, Balboa Park, San Diego, Calif.

District of Columbia Veterinary Medical Association. Mayflower Hotel, Washington, D. C. July 22, 1941. W. M. Mohler, secretary, 5508 Nebraska Ave. N.W., Washington, D. C.

Iowa Veterinary Medical Association, second annual golf and stag day. Pine Lake Country Club, Eldorado, Iowa. July 31, 1941. R. R. Griffel, secretary and defending champion, Eldorado, Iowa.

American Veterinary Medical Association. Murat Theatre and Shrine Temple, Indianapolis, Ind. August 11-15, 1941. J. G. Hardenbergh, executive secretary, 600 S. Michigan Ave., Chicago, Ill.

State Board Examinations

Connecticut Board of Veterinary Registration and Examination. Office of the Secretary, State Office Bldg., Hartford, Conn. July 1, 1941.

Oklahoma Board of Veterinary Medical Examiners. State Capitol Bldg., Oklahoma City, Okla. July 1-2, 1941. W. C. McConnell, secretary, Holdenville, Okla.

Indiana, Veterinary Examining Board of. Rooms 209-210 State House, Indianapolis, Ind. July 8, 1941. Inquiries should be addressed to J. L. Axby, secretary, at the above address.

Virginia State Board of Veterinary Examiners. Lynchburg, Va. July 9, 1941. Candidates may secure application blanks and further information from H. H. Adair, secretary, Bristol, Va.

Maine Board of Veterinary Examiners. July 14, 1941. For further information communicate with S. W. Stiles, secretary, Falmouth Foreside, Me.

Utah Veterinary Medical Examining Board. Room 302, Capitol Bldg., Salt Lake City, Utah. July 14-15, 1941. Applicants must submit applications and diplomas and a $15 examination fee, either to the Department of Registration, 326 Capitol Bldg., or to the secretary, W. H. Hendricks, 302 Capitol Bldg., Salt Lake City, Utah. Application blanks will be furnished upon request.

Illinois State Board of Veterinary Examiners. State Department of Registration and Education, 600 S. Michigan Ave., Chicago, Ill. July 28-29, 1941. Applications should be filed with the Department 20 days before this date.

DEATHS

R. R. Shaw, 47, of St. Paris, Ohio, committed suicide, presumably because of ill health, on May 6, 1941.

Born on March 16, 1894, at Sidney, Ohio, Dr. Shaw was graduated from the McKillip Veterinary College in 1916. He joined the AVMA in 1929.

Jacob G. Pfersick of Greenfield, Mass., died on April 11, 1941.

Dr. Pfersick was graduated from McGill University in 1898 and joined the national association in 1906.

Harry C. Stamen, 44, of New Rochelle, N. Y., died of bronchial pneumonia on May 4, 1941.

Born in Russia, August 22, 1896, Dr. Stamen came to this country as a child. He was graduated from The Ohio State University in 1922 and immediately afterward joined the staff of the Angell Memorial Animal Hospital in Boston, Mass. For the past 14 years he was in practice at New Rochelle and for several years served as a member of the board of directors of the New Rochelle Humane Society.

Dr. Stamen joined the national association in 1939.

William J. Tower, 23, of Leominster, Mass., died in April of 1941.

Born at Fitchburg, Mass., August 10, 1917, Dr. Tower was graduated from the Ontario Veterinary College in 1939. He joined the AVMA in 1939.

William C. McLean, 60, of San Mateo, Calif., died of a heart attack on May 18, 1941.

Dr. McLean was graduated from the San Francisco Veterinary College in 1901 and joined the national association in 1916.

James E. Robertson, 88, of Seattle, Wash., died of a heart attack on May 30, 1941.

Dr. Robertson was born in Fayette county, Iowa, March 13, 1853, and was graduated from the Ontario Veterinary College in 1894. He joined the national association in 1904.

David E. Hickman, 59, of West Chester, Pa., died on June 10, 1941.

Born at Gradyville, Pa., June 9, 1882, Dr. Hickman was graduated from the University of Pennsylvania in 1904.

Jose H. Morales, 34, of Juarez, Mexico, was shot to death on one of the main thoroughfares of that city on May 14.

Major Salvador Lopez Hurtado of the Mexican army veterinary corps gave himself up to Juarez police after the shooting. He said that the Juarez veterinarian made a motion as if he were about to draw a gun. Police who searched the body were unable to find a weapon.

Dr. Morales was a graduate of the University of Mexico.

PERSONAL NOTES

Births

To Captain (Wash. '34) and Mrs. William R. Kermen of Vancouver Barracks, Wash., a son, William Michael, May 27, 1941.

To Dr. (O. S. U. '36) and Mrs. Alexander Greenfield of Ottumwa, Iowa, a son, Michael Robert, April 16, 1941.

Activities

Roy E. Nichols (Ont. '33), instructor in the department of surgery and clinics of the College of Veterinary Medicine, The Ohio State University, will join the veterinary department of Purdue University, July 1, as veterinary physiologist.

Henry W. Peele (U.P. '20) of Woodstown, N. J., has been appointed president of the Pilesgrove-Woodstown board of education.

J. J. Strandberg (Chi. '16) of Belle Plaine, Iowa, president of the Eastern Iowa association, was elected mayor of Belle Plaine at the April election.

A. M. Orum (Iowa '41) has located for practice at Carthage, Ill.

L. E. Starr (O.S.U. '13) has resigned from the staff of the School of Veterinary Medicine, Alabama Polytechnic Institute, Auburn, Ala.

Chester H. Kennedy (K.S.C. '40), formerly of Parsons, Kan., has accepted a position as district veterinarian with the Nevada state department of agriculture, with station at Elko, Nev.

Carter H. Anthony (K.S.C. '40), formerly associated with the department of bacteriology and veterinary science at the University of Arkansas, Fayetteville, Ark., has accepted a position with the National Zoölogical Park, Washington, D. C.

Ray Klussendorf (Corn. '31) has resigned his position with the Wisconsin state control laboratory at Madison to engage in private practice at Columbus, Wis.

V. F. Saylor (Ind. '14) of Zionsville, Ind., supervisor of swine diseases for the Indiana state livestock sanitary board, has accepted a position with Cutter Laboratories at Berkeley, Calif.

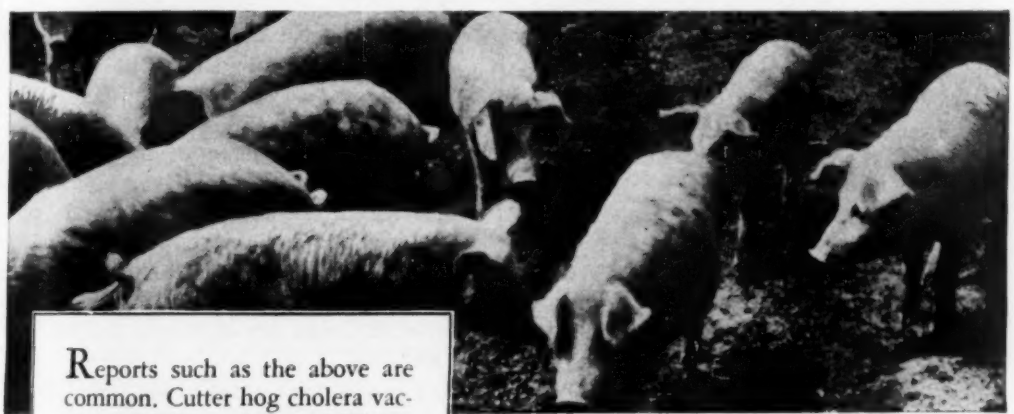
George B. McKillip (Mc.K. '08) of Chicago, Ill., has been reappointed veterinarian for the Illinois state racing commission, a position he has held for many years.

An actual field report from Illinois on Cutter B. T. V.

"TODAY THE B.T.V. PIGS AVERAGE AS LARGE AS THE SERUM-VIRUS PIGS, YET THEY ARE ABOUT TEN WEEKS YOUNGER!"

"In the Fall this herd had hog cholera. Everything was given serum and virus, including some eight to ten week-old pigs, but with the exception of some day-old pigs. These latter, along with some which were born within the next few days, were given B.T.V. ten weeks later, and earmarked to distinguish them from the serum-virus treated animals. When I saw this herd today, I found that the B.T.V. pigs average as large as the serum-virus pigs, yet they are about ten weeks younger.

"The smallest pigs in the group were among the serum-virus pigs. Considering that all of these pigs have been running together all of the time, and that the younger pigs never get as good a chance to grow when they feed with older pigs, I think this was quite interesting and remarkable."



Reports such as the above are common. Cutter hog cholera vaccines, B.T.V. and Crystal Violet, not only stop "vaccination stunting," but prevent vaccination breaks and markedly lower losses from secondary infections such as pneumonia and enteritis.

Let your clients market their pigs weeks earlier. Vaccinate with Cutter B.T.V. or Crystal Violet and avoid the grief incident to serum-virus treatment.

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It will show . . . simply and graphically . . . the careful, precise processes and technic required to prepare several of these Armour veterinary medicinals.

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It will demonstrate how Armour's Veterinary Division works to keep pace with your progress . . . to provide you with the preparations called for by today's scientific advances.

We urge you to visit our booth. You will be cordially welcomed by members of the Veterinary Division staff, who will be on hand at all times during the meeting.

We feel certain that you will find the Armour Exhibit well worth your attention.

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ARMOUR AND COMPANY

VETERINARY DIVISION, KANSAS CITY, KANSAS

An' Related Topics

British Not Hungry

Says Daily Digest, USDA, "Reports are current in New York that British authorities attracted by current high levels of the American butter market, and because of the lack of shipping, would release large quantities of New Zealand and Australian butter for sale on the U. S. market."

Dogs, Cats Used for Food in Belgium

A dispatch from Brussels *via* Berlin says that the sale of dogs and cats for food in the region of Brussels has been reported by independent investigators. The meat of these animals is said to be prepared in various forms, one of which is grinding it and mixing with linseed oil. The government is investigating. — *USDA, Daily Digest, Feb. 20, 1941.*

Labor Shortage in China

Among the paradoxes of the moment is the shortage of labor in China. Cause: 2 million soldiers killed and 5 million under arms, a dislocation of population that even overpopulated China can not endure.

The actual casualties of war and the legions engaged in nonproductive labor coupled with the civilian hardship and illness and untilled acres lurking in the wake of armies of China are certainly a warning to all nations.

The U. S. A.

In judging the strength of the United States it is well to remember that it is but a ribbon of land stretching across the North American continent, a country that the nations of Europe thought little about until after the World War, when its wealth, its culture, its charitable folks and its brave soldiers went on exhibition for the first time in its short history.

Europe, not including Russia, has 19 per cent of the land area of the world and it does 51 per cent of the world's trade.

(*Continued on page xx*)

for weak

labor... use

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THE smooth muscle fibers of the uterus are stimulated by Lentin. Because of this action, it is possible to use Lentin as an ecbolic in cases of weak labor. Repeated small doses may be employed in cases of uterine inertia until the desired degree of stimulation is obtained. In the event that excessive stimulation results, a therapeutic dose of atropine will abolish its action.

Lentin may also be used to hasten involution.

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FOR THE TREATMENT OF

Constipation **Atony of Bowel**
Impaction **Gastro-intestinal Catarrh**
Tympanites **Dyspepsia**
Cecal and Colonic Impaction in Horses
Impaction and Atony of Rumen in Cattle and Sheep Choke
(pharyngeal and esophageal obstruction)

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Excellent results are being obtained from the use of PERANDREN in sexually impotent male humans and various animals, small and large. Particularly good are reports concerning selected cases of impotence in dogs injected with PERANDREN, "Ciba", a form of the most powerful male sex hormone known. Tying ensued in a matter of 24 to 48 hours with subsequent litters of healthy whelps.

LITERATURE UPON REQUEST

*Trade Mark Reg. U. S. Pat. Off. Word "Perandren" identifies the product as testosterone propionate of Ciba's manufacture. Available through usual trade channels.

CIBA PHARMACEUTICAL PRODUCTS, INC.
Summit, New Jersey

An' Related Topics

(*Continued from page xviii*)

Canine Historiography

The antiquity of the dog is taken for granted, but the origin of breeds is but a *jeu de mots*. The dullest reading and the least edifying in all natural history is the speculation on when/where/how the main breeds of dogs originated. Some authors would trace all breeds to the Shepherd. But here, it seems reasonable to ask by what tricks of crossing there was created the Bulldog, the Mastiff, the Wolfhound or the tiny toys in just the few years since the curtain of prehistory was lifted. Better to think of the primordial dog as a predatory terrier or hounddog serving prehistoric masters when there were more dangerous things to do than watching peacefully over the flocks of the pasture.

Since Noah grounded on Ararat, 2347 B. C., is too short a time to develop the profusion of types, sizes and breeds from a single species of a mammalian family; it is safer to say of most breeds that they were created "way back when."

Agriculture—and this includes all of the money spent by the Department of Agriculture and land grant colleges—is spending only one seventh of one per cent on research.—*The Prairie Farmer.* The marvel is that so much has been accomplished by research on animal diseases which is allotted but a part of this small total.

(*Continued on page xxii*)

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(Para-Amino-Benzene-Sulfonamide)

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Goodwinol is an unguent containing rotenone and ortho-phenylphenol in a cholesterin base—greaseless, odorless, and easy to apply. It penetrates quickly, and promptly relieves itching and scratching. Growth of hair is promoted.

Of particular interest, Goodwinol *will not injure the eyes* —nor make them "smart." It is completely non-toxic. Being readily water-soluble, it is easily washed out of clothing or household effects without leaving any stain. Goodwinol is essentially economical—a little bit goes a long way, without waste. Sold only to veterinarians for dispensing.

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to beautify their coats and our
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An' Related Topics

(*Continued from page xx*)

Reading Material Abundant

Constituent associations of the national which publish periodicals are Iowa, Maine, New York, Texas and Washington. Six magazines are circulated widely on paid subscriptions and three student bodies publish journals *distingués*, namely, Iowa, Michigan and Ontario. With these and all of the house organs that come along in rhythmic tempo, no veterinarian of North America should pine away for want of reading material.

We can not change the world by changing forms of governments. We can change it only by changing ourselves.

The destiny of a profession depends not upon the rules, regulations or codes of its society, but upon the everyday conduct of its members.

(*Continued on page xxiv*)

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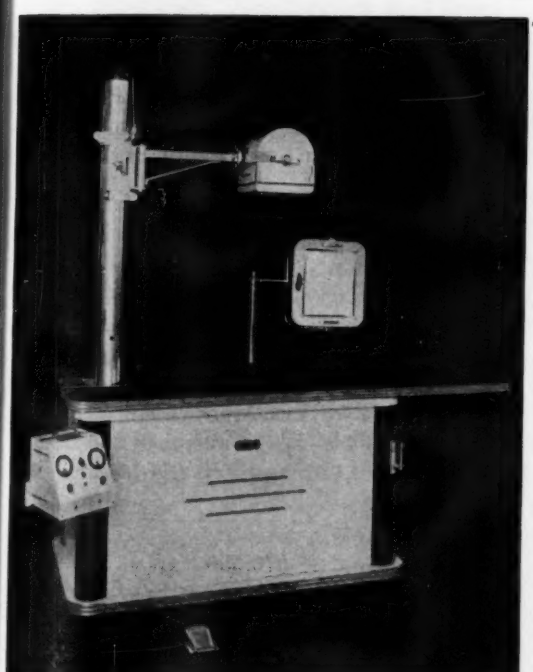

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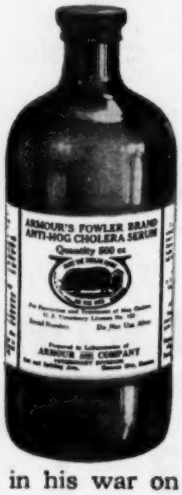

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An' Related Topics

(Continued from page xxii)

The Military Camp Not a Tearoom

As the youth of the nation are being drafted into the military service in ever-increasing legions, it may be in order to remember that an army camp is not a tearoom but a place where men are trained to defend your fireside—if necessary to fight, to destroy property, and to kill without compunction. Soldiers are men taught to obey law and order, to get hard-boiled, and to protect their health against the vicissitudes of agglomerated humanity.

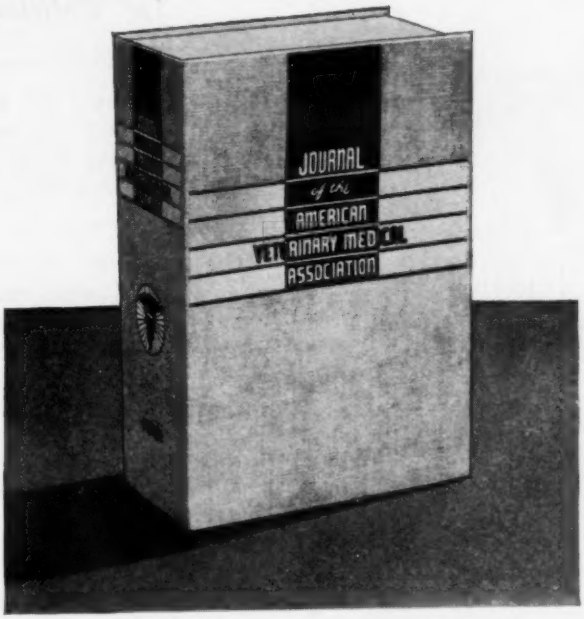
The notion that an army must be a cohort of roustabouts unfit for civilian pursuits is a concept of the past, born of the pacifism that kept the Regular Army down to 20,000 at $13.00 a month and grudgingly provided these with officers at bare-living pay while great wealth piled up and the industries mounted to gargantuan heights, unprotected.

Don't think of your boy at the military camp as a tearoom cad. He's being trained to be a tough guy, tough enough to stick a bayonet through the invader of your hearth. Otherwise, we are headed for the dreamless sleep of eternity from the anesthetic pacifism held to our noses for too many years.

The London correspondent to *The Journal of the American Medical Association* reports, as of January 25 (1941), that German bombs have killed 2,351 children under 16 years and injured 2,474. In December the number of civilians killed was 3,793; injured, 5,044. For November the number killed was 4,588 and for October, 6,344.

The killing of 870,000 rats is the record claimed for a blitzkrieg on rats carried out in Chicago during four months. This number is said to be half of the total rat population of that city. The job was done with poison bait.

(Continued on page xxvi)



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An' Related Topics

(Continued from page xxiv)

In the manner of speaking, tuberculin testing in school children is "all the bunk," according to the *Bulletin of the Municipal Tuberculosis Sanitarium* of Chicago.

The theory of external influences on the unborn child was expounded by Oliver Wendell Holmes in his novel "Elsie Venner." The snakelike nature of Elsie's child was attributed to the mother having been bitten by a snake during gestation.

Among the European gifts to the United States are the rat, the mouse, the sparrow, the carp, the moth and the horsefly. We acknowledge receipt of the Canada thistle, dandelion, plantain, pigweed and devil's paintbrush. In return we gave Europe potato bugs, tobacco and syphilis.

State Medicine in New Zealand

A plan of free medical care has been started in New Zealand. Except vaccines, serums and antitoxins, drugs are free and the doctors receive $3.50 per patient. But, says a recent report (*Time*, May 5, 1941), "Only 50 out of the country's doctors have signed up with the plan."

New Zealand physicians denounce the scheme as "state helotry" and in that respect they comport with organized medicine in the United States.

(Continued on page xxviii)

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DOG SENTIMENT CARDS for office wall, set of 12, 60 cents. Judy's *Dog Encyclopedia*, all dog subjects, $5. *Dog World* monthly, $2 for one year; $3 for 2 years; $5 for 5 years. JUDY PUBLISHING COMPANY, 3323 Michigan Blvd., Chicago, Ill.

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NEW ROCHELLE (Westchester county), N. Y., modern small animal hospital and boarding kennels. Built four years ago; complete with x-ray, fluoroscope, surgical instruments, examining and kennel rooms, outside kennels and runs accommodating 75 animals. Also modern seven-room house. Established practice of 14 years. Reason for selling: owner deceased. Mrs. Harry C. Stamen, 34 Woodside Park, New Rochelle, N. Y.

PREDOMINANTLY small animal practice, grossing upwards of $8,000. 27 kennels, 54 runways. Western state. No property. For further information address: "KY," c/o Journal of the AVMA.

SMALL ANIMAL practice in suburban New York. Hospital fully equipped. Property rented; apartment on premises. Overhead low. Personal reasons for selling. Address: "EM," c/o Journal of the AVMA.

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An' Related Topics

(*Continued from page xxvi*)

Libido

Sexual desire is governed by the hypothalamus, neurologists of Northwestern University told the American Physiological Society at its Chicago meeting in April. Although checked somewhat by the cortex of the cerebrum, the hypothalamus is the motor of fear, rage and sexual desire. The proof was furnished by experiments on guinea pigs. With this small area of the brain out of commission, males were indifferent to females although the gonads of the experimental animals remained in normal, healthy condition.

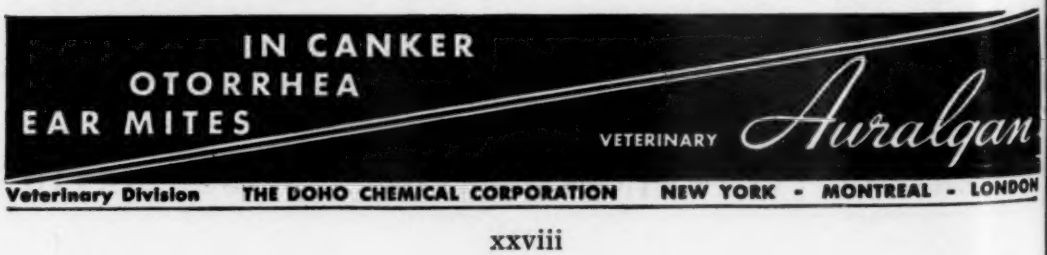
Pseudocyesis (= False Pregnancy)

False pregnancy is manifested by practically all of the outward signs of normal pregnancy: distention of the abdomen, swollen mammae, and often complete amenorrhea. Women even contend that they can feel lively kickings of the fetus, and resent being told that they are not pregnant when biological tests are used to solve the problem. The cause is psychic—the inherent desire to reproduce. Dr. R. N. Rutherford of the Boston Lying-In Hospital (*Time*, April 28, 1941) calls pseudocyesis "psychiatry's baby."

The Best Seller

The Bible continues to be the best seller. The sale in the United States in 1939 was 5,500,000 copies. The figure for 1940 is 8,000,000. In Germany, Holland, Denmark, Norway, France, Belgium, Great Britain and the U. S. A. more than 26,500,000 copies were sold last year, all in the shadow of the great mass of secular literature and war.

(*Continued on page xxx*)



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An' Related Topics

(*Continued from page xxviii*)

Mutually Helpful Advice

The veterinary column of *Successful Farming* points out (1) the injurious effects of young cocklebur in the hog lot; (2) the needs of vaccinating calves against blackleg; (3) the danger of blackhead in turkeys running with chickens; (4) the potentiality of a sitfast on a horse's neck; (5) the meaning of a non-sweating horse on a hot day; and (6) the deadly effect of blowflies in castrated lambs.

While this sort of advice is intended for the edification of the farmer, it brings the right kind of understanding between client and doctor. Incidentally, there is considerable difference in the veterinary columns of farm papers.

American Physicians for Great Britain

American physicians have been requested for service in the Royal Army Medical Corps of Great Britain or the British Emergency Medical Service. The rank of Lieutenant with promotion to Captain after 12 months of satisfactory service are inducements offered. Further promotion will be by selection based upon merit. Besides the regular pay of $1,456.50 a year for lieutenants and $1,800.00 a year for captains, these appointees will receive lump sum gratuities at the end of the year amounting to $402.50 and $603.75, respectively. Free transportation from home to destination will be furnished. The age limit for the medical corps commission is 40 years and for the emergency medical service 45 years. Professional credentials are passed on by the National Research Council, American Medical Association, the American College of Surgeons and the American College of Physicians.

A soldier may be a great marksman and a good caretaker of his rifle, or a fine airplane pilot and mechanician, but that does not qualify him as a master of military science.

IMPORTANT CHANGE
IN
BRUCELLA ABORTUS VACCINE PACKAGING

Under recent requirements of the U. S. Bureau of Animal Industry, Brucella Abortus Vaccine filled into final containers after April 2, 1941, must be filled *only* in single dose vials, each vial to contain 6 c.c. The required vial is made of special alkali-free glass because the Bureau reports that this type glass is necessary for the proper preservation of the vaccine.

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At present we have available 50 c.c. vials of this vaccine packaged in special treated glass, but when the present supply of this package is exhausted, no more will be available.

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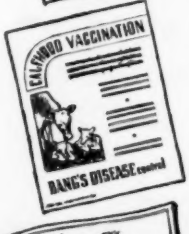

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